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ABSTRACT

Intended for preservice regular education teachers, the modules in Series III address the knowledge and skills considered essential for working directly with exceptional children. It is explained in a series overview that many of the enabling activities require contact with children in the classroom and therefore the moduels should be used in methods classes and/or student teaching. Module 1 helps preservice teachers develop skills in verbal communication by giving clear directions to learners; by using set induction, cueing, and closure; and by reinforcing appropriate classroom behaviors differentially. Module 2 addresses a systematic procedure, interaction analysis, for describing and classifying verbal and nonverbal communication between teacher and learner. A third module focuses on all facets of questioning techniques. Module 4 helps preservice teachers integrate and apply their professional skills and knowledge to the planning and delivery of instruction that ensures frequent success for learners. A fifth module explains a variety of motivational techniques, while a sixth describes techniques for classroom behavior management. Module 7 focuses on formative evaluation, and Module 8 gives information on maintaining precise and accurate records of students' daily progress. The final two modules present procedures for reporting student progress to parents and to ancillary personnel. A prospectus, student objectives, and enabling activities are outlined for each module. Sample forms and handouts are included. (SBH)

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Educating Students in Least Restrictive Environments:
Instructional Preparation for Teachers

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Series III: Instructional Management for Exceptional Children in Regular Classes

School of Education
The University of Kansas

Managing Editor: Oscar Haugh
Series III Editor: M. Evelyn Swartz

EDUCATING STUDENTS IN LEAST RESTRICTIVE ENVIRONMENTS
Instructional Preparation for Teachers

produced by the
Dean's Grant Project
School of Education
The University of Kansas

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FORWARD

The instructional modules included in this unit were designed for use by preservice regular education teachers in University of Kansas' School of Education. More than fifty percent of the faculty in the School of Education participated in the development of one or more modules designed for integration within the regular teacher education curriculum at the University of Kansas. Moreover, the modules were developed at least in part by individuals who would teach the content. Thus, while the modules are appropriate and complete for use by our own faculty, they may seem inappropriate or incomplete to another reader. The module format was adopted primarily to maximize instructor flexibility in incorporating this content into the existing preservice curriculum. Because of the form of the modules, the instructor who adapts them for use will need to become thoroughly familiar with module content as well as to provide examples of how principles included in each module can be applied to the content of his/her course. We realize that this does limit the usefulness of this curriculum outside the University of Kansas School of Education, but maximizes the utility of the units within the School of Education.

ASSUMPTIONS OF THE CURRICULUM

In accord with the philosophical basis of the Dean's Grant Project at the University of Kansas, these modules were field tested and are being taught as integrated portions of regular education content. The advantages of this approach include the following:

1. This manner of presentation is in consonance with the underlying philosophy of mainstreaming. While modules could be included in separate, special education courses, the University of Kansas' modules were developed with the intent of ending the separation between regular and special education methodology in preparing teachers to serve children in Least Restrictive Environments.

2. Integration of Least Restrictive Environment content into regular education courses will enhance student appreciation of the fact that teaching mildly handicapped students in regular classrooms is an integral part of the teaching responsibility, not an educational afterthought.

3. Integration of the modules into regular education classes will facilitate student ability to apply techniques previously associated with special education to regular education content. Also, integration of the modules will enhance student awareness of the critical importance of sound instructional technology in all content areas for mildly handicapped students.

4. Integration of Least Restrictive Environment content into regular education courses will enhance the potential application of this content to addressing the unique needs, learning styles, and interests of all students.

OVERVIEW OF THE DEVELOPMENT PROCESS

The modules included in series 1-5 of *Educating Students in Least Restrictive Environments* are the culmination of the efforts and commitment of a large proportion of the School of Education faculty at University of Kansas during the 1975-1978 Dean's Grant Project.

The conception of *Educating Students in Least Restrictive Environments* as a curriculum development project at University of Kansas' School of Education occurred during 1975 when faculty generated and reached consensus on a list of competencies which would serve as a basis for the new Least Restrictive Environment content.

Through Summer, 1976, faculty volunteers wrote an original set of modules addressing each competency. This first attempt at developing the new curriculum resulted in a series of modules which varied greatly in length, format, demands on the instructor, and class hour demands for instruction. Thus, on the basis of formative evaluation of the modules, format and content revisions were made in order to produce a more consistent curriculum which could, in fact, be taught within the course/time parameters of the overall School of Education curriculum. This revision process included changing content of modules, deletion of some modules and development of new modules, as necessary to ensure a consistent and coherent curriculum.

The final step in developing the *Educating Students in Least Restrictive Environments* curriculum was summative evaluation of the curriculum in the form of field testing modules in regular education courses. During Fall, 1977 and Spring, 1978 this summative evaluation was conducted, and modules were further revised on the basis of recommendations from regular education faculty who taught the new material and students who received the instruction. The resulting series constitutes the *Educating Students in Least Restrictive Environments* curriculum.

We sincerely hope that the *Educating Students in Least Restrictive Environments* curriculum will be useful instructional tool to both faculty and students of the School of Education, University of Kansas, as well as to other institutions of higher education and inservice teachers who may wish to adapt our curriculum for training regular educators to teach handicapped students in the Least Restrictive Environment.

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1975-1978

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The *Educating Students in Least Restrictive Environments Curriculum* represent the efforts of many University of Kansas School of Education faculty who were involved in considering and revising competencies, writing original modules, reviewing the original modules, and revising or developing new modules. While authorship of modules included in this curriculum reflects only those faculty who contributed to the revised series of modules, the task of these authors would have been overwhelming without the original contributions of faculty who developed the first units. It is only appropriate, then, to acknowledge all persons who have provided voluntary time and effort to the writing process and to consider those persons as contributing authors.

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CONTENTS

Series Overview
M. Evelyn Swartz 1

Complete list (titles) 3

Instructional Planning for Learner Participation
Joel A. Colbert 5

Verbal and Nonverbal Communication
Joel A. Colbert 23

Questioning Techniques for the Classroom
Walter Smith and P. Jeannie Kleinhammer 40

Planning Frequent Success Experiences for the Classroom
George Duerhsen and P. Jeannie Kleinhammer 58

Motivational Techniques
Joel A. Colbert 66

Managing Your Classroom
Thomas M. Skrtic 92

Formative Evaluation in the Classroom
Thomas M. Skrtic 117

Maintaining Records of Daily Progress
Thomas M. Skrtic 131

Reporting Student Progress to Parents
Joel A. Colbert 154

Reporting Student Progress to Ancillary Personnel
Peggy Glazzard and Mary R. Moran 180

Series Overview

Series III - Instructional Management
M. Evelyn Swartz

The modules in Series III, Instructional Management, address the knowledge and skills considered essential for working directly in the regular classroom with exceptional children. This series is one part of a complete curriculum, *Educating Students in Least Restrictive Environments: Instructional Preparation for Teachers,* developed for the Dean's Grant Project, School of Education, University of Kansas. (A complete listing of modules included in the five instructional packages follows this overview.)

Recommended Placement of Modules for Instruction

The modules in this series have been field tested and taught in various methodology courses. Since many of the enabling activities require contact with children in classrooms, it is recommended that these modules be used, for the most part, in methods classes and/or student teaching.

Overview of the Series

The content and suggested activities for these modules are designed to help the preservice teacher develop understanding and skills considered necessary to work effectively with all children, especially exceptional children placed in regular classrooms. The focus of all the modules is on techniques for managing instruction and include activities that help learners develop specific skills that are considered essential for teachers working with exceptional children. The modules include activities designed to help preservice teachers develop skills that are used directly with children; e.g., verbal and nonverbal communication, questioning, motivation, and management through instruction. There are also activities that deal with the development of skills that support instructional programs; e.g., record keeping, reporting student progress.

Instructional Considerations

Each module contains specific instructions for the person delivering the module and for the student. Some modules, in fact, are specific enough that learners can work on them independently; however, most require some interaction between instructor and learner. It is recommended that the instructor review each module and the directions carefully before the module is introduced to the learner so that special provisions, e.g., use of an elementary classroom, etc., can be arranged before instruction is begun.

It is also recommended that the suggested readings, most of which are included with each module, be reviewed by the instructor. When readings are not included, the instructor will find it necessary to make them available for student use. It should be noted that the readings included may not reflect an instructor's personal preference. However, the readings are ones that have been used in the field testing and have been found appropriate for the purposes of the modules. Certainly, individual instructors may want to modify or adapt this content to fit his/her unique situation.

Educating Students in Least Restrictive Environments, SERIES TITLES

Series I Characteristics and Assessment

1. Characteristics of Normal and Exceptional Learners
2. Classroom Assessment Principles and Procedures
3. Theories of Learning
4. Writing Behavioral Objectives

Series II Planning for Instruction

1. Approaches for Delivering Special Education Services
2. Referral Systems
3. Development and Use of the IEP
4. Analyzing Instructional Tasks
5. Selecting Instructional Activities for a Students Strengths and Weaknesses
6. Individualizing Instructional Materials and Media
7. Organizing and Planning for Individual and Group Instruction
8. Planning Classroom Schedules for Individual Instruction
9. Planning Classroom Layouts for Exceptional Learners.

Series III Instructional Management

1. Instructional Planning for Learner Participation
2. Verbal and Nonverbal Communication
3. Questioning Techniques for the Classroom
4. Planning Frequent Success Experiences for the Learner
5. Motivational Techniques
6. Managing Your Classroom
7. Formative Evaluation in the Classroom
8. Maintaining Records of Student Progress
9. Reporting Student Progress to Parents
10. Reporting Student Progress to Ancillary Personnel

Series IV Communication Skills

1. Communication Skills
2. Attitudes Toward Exceptionality

Series V Legal, Philosophical, and Social Issues: Implications for Handicapped Students

1. Litigative and Legislative Trends in Educating Handicapped Students
2. Legal Protections for Handicapped Students in the Schools
3. Teacher Responsibility and the Law
4. Historical Issues in Educating Handicapped Students
5. Social and Ethical Implications of Terms and Labels
6. Values, Priorities, and Policies Regarding Handicapped Students
7. Ethical and Social Consequences of Testing, Grouping, and Special Treatment
8. Social Determinants of Attitudes toward Exceptionality
9. Influence of Social and Environmental Interactions on Self Concept of Handicapped Students
10. Public Attitudes, Political Climate, School Policy: Impact on Treatment of Exceptional Learners

INSTRUCTIONAL PLANNING FOR LEARNER PARTICIPATION

by
Joel Colbert
University of Kansas

In any classroom there is a great deal of time in verbal communication; most of this is done by the teacher. The purpose of this module is to help preservice teachers develop skills in verbal communication by giving clear direction to learners, by using set induction, cueing and closure, and by reinforcing appropriate classroom behaviors differentially.

Student Outcomes

Upon completion of this module, students will be able to give clear directions to learners, use set induction, cueing and closure, and use differential reinforcement.

Instructor Information

Prerequisites:

Before beginning this module, students should be able to describe behavior characteristics of normal and atypical learners, make curricular choices based on appropriate learning theories, meet the needs of individual learners in curriculum areas, individualize instruction, and use a variety of verbal and nonverbal ways of communicating with learners.

Organization:

The teaching time of this module is 4 to 6 hours. The module is organized into 15 enabling activities, each of which deals with one or more of the following topics: giving clear directions to learners, using set induction, cueing and closure, and differential reinforcement. The instructor will note that microteaching is a major technique used in this module. A major source of information for use in the microteaching is found in the recommended films. Readings and class discussion are included in the enabling activities.

Content Overview:

The content in this module is all focused on helping preservice teachers become skilled in the effective use of verbal communication.

1. Explanation of two types of directions: procedural and managerial.
2. Activities to demonstrate student's ability to give procedural and managerial directions.

3. Explanation of set induction.

4. Explanation of cueing.

5. Explanation of closure techniques.

6. Explanation of differential reinforcement techniques.

Suggestions for teaching:

Before introducing this module to students, the instructor will find it helpful to arrange for use of a microteaching facility for four sessions. These sessions may be on one day or 2 to 4 days. If such a facility is not available, students can practice techniques in an elementary/secondary classroom, or can practice in their own class using role-playing.

Students should complete the following required readings before beginning the other module activities: "Direction Giving in the Classroom" by Colbert; "Set Induction" and "Closure" by McKnight, Schick and Cleaver. The films included in this module are available at General Learning Corporation Film Library, 267 W. 25th St., New York, N.Y. 10001.

Evaluation:

No formal evaluation is included in this module. Instead, students will be evaluated by themselves and their peers as they participate in the microteaching (or role-play). If a knowledge assessment is desired, the instructor may prepare this from the readings and films included.

INSTRUCTIONAL PLANNING FOR LEARNER PARTICIPATION

by
Joel Colbert
University of Kansas

Prospectus

It is very important, in working with exceptional children in regular classrooms, to be able to give clear, unambiguous directions, to provide set induction, cueing and closure to learning situations, and to provide appropriate differential reinforcement. Some of these terms may be new to you, but, as you participate in the various activities, you may recognize many of the ideas included in these terms and techniques. Although all the skills you will begin to master in this module are important in any classroom, they are critically important when working with children who have special learning needs.

Student Objectives	Enabling Activities
1. The student will be able to define and give examples of two types of directions.	1. Reading 1, Colbert. 2. Handout 1. 3. Class discussion: The Two Types of Directions. (Discussion should be short because of the clarity of the article.)
2. The student will be able to describe the need for communicating clear directions to exceptional and normal learners in a regular classroom.	1. Activity 1, Giving Directions. 2. Class Discussion: "Problems in Giving Directions to Exceptional Learners."
3. The student will be able to define the concept of cueing.	1. Film: "Increasing Student Participation" - Cueing, Silence and Nonverbal Cues. 2. Class Discussion: The Use of Cueing, Silence, and Nonverbal Cues in Teaching.
4. The student will be able to define the teaching skills of set induction and closure.	1. Reading 2, McKnight, Schick, and Cleaver, pp. 29-32. 2. Film: "Set Induction." 3. Film: "Closure." 4. Handouts 2 and 3 "Characteristics of Set Induction," and "Characteristics of Closure." 5. Class Discussion: The Use of Set Induction and Closure in Teaching.

Student Objectives (cont.)	Enabling Activities (cont.)
5. The student will be able to define the term "reinforcement" as it applies to its use in the classroom.	1. Reading 3, Herman, pp. 23-55. 2. Film: "Cluster III, Reinforcement (Elementary/Secondary)."
6. The student will be able to describe the use of reinforcement in the classroom, especially as it can be used with exceptional learners.	1. Reading 4, Herman, pp. 91-134. 2. Class Discussion: The Use of Reinforcement with the Exceptional Learner.
7. The student will be able to demonstrate the following in microteaching situations: communication of clear directions; cueing; set induction; closure; and differential reinforcement. Note: These should be demonstrated in 4 separate microteaching sessions. Two or more of these sessions may be "back to back."	1. Students should sign up for four microteaching sessions, each 5 to 10 minutes long. Feedback should be given after each demonstration, and re-teaching should immediately follow the feedback. A feedback sheet is available for each session. (See Feedback Sheets 1, 2, 3, 4).

Readings

1. Colbert, Joel A. *Direction Giving in the Classroom*. Unpublished paper, University of Kansas, 1978.
2. McKnight, P.C.; Schick, K.; and Cleaver, G.A. *On teaching*. Lawrence: Office of Instructional Resources, 1975, pp. 29-32.
3. Herman, T.M. *Creating Learning Environments: The Behavioral Approach to Education*. Boston: Allyn and Bacon, 1977, pp. 23-55; 91-134. (On reserve in Educational Library.)

Direction Giving in the Classroom

Joel A. Colbert
University of Kansas

It is not an uncommon occurrence in public school classrooms for the teacher to spend two-thirds of class time talking. Also, approximately two-thirds of teacher talk has been observed to be of a direct nature. Direct teacher talk includes giving directions to students, lecturing, criticizing students and other such behaviors. If a teacher reflects upon his or her behavior during the course of a school day, it becomes apparent that an inordinate amount of class time is spent in this type of verbal communication. In this paper, a widely used teacher verbal behavior, direction giving, both to typical and exceptional children, will be discussed.

There are two basic types of directions. The first are those that deal specifically with the lesson. Hall (1972) has termed these "procedural directions," defining them as, "giving directions and procedures, telling the students how to do substantive behaviors. This would require an immediate student response or behavior. Substantive means anything directly concerning the lesson." Examples of procedural directions include, "Cathy, would you go to the board and do problem 5," "Read the next paragraph, Irene," and "Get in your groups and work on the projects you started yesterday." The second type of direction commonly used is what Hall (1972) has called "managerial directions." These are directions that do not deal directly with the content of the lesson. Examples of managerial directions include, "Shut the door, Harry," "Sharpen these pencils for me," and "Form a line, please."

In both procedural and managerial directions an immediate response by students is required (Hall, 1972). However, there are those directions; e.g., homework assignments, that do not require an immediate response, but a response at a later date. In the present paper those directions are also categorized as procedural, e.g., "For tomorrow, read pages 10 through 20," or managerial, e.g., "Bring a note from your doctor tomorrow, Bill." In either case, that is, when an immediate or postponed response is elicited, we have directions that are communicated verbally from teacher to student that we hope will be carried out by students as intended. From past experience, it is not too cynical to suggest that it is rare for all students to follow appropriately the directions given.

In the present case, what are the implications of direction giving and following in a classroom comprising both typical and exceptional learners? The education literature is practically devoid of information in this area. A teacher confronted with students who cannot follow verbal directions is confronted with a serious dilemma. Brown, Bellamy, Tang, and Klemme (1971) suggested three alternatives for teachers in such a dilemma: First, the teacher could model the behavior and hope for a favorable, imitative response from students; second, the teacher can physically guide students through the requested movements; and third, the teacher may perform tasks implicit in the directions. It is apparent that no matter which option is utilized, a great deal of teaching time and energy is required and there is no guarantee of favorable results.

Scheverman, Cartwright, York, Lowry and Brown (1974) devised a program for training young severely handicapped children to follow directions. Their directions were for single and double component directions only. A single component direction involves only one task, e.g., "Stand up," while a double component direction involves two tasks, for example, "Stand up and wave your hands." Their program resulted in students' acquiring fundamental direction-following skills, but they noted several problems, such as students having difficulty in switching from one component to two component directions, and problems with generalizing their direction-following skills from one situation to another. However, there is merit to developing such a program for training children, especially mentally retarded children, to follow directions, and the authors suggested that more research is needed in this area.

Lent, Holvoet, Fernetti, Keilitz and Tucker (1973) studied direction-following in retarded and nonretarded adolescents. Specifically, they analyzed the ability of retarded and nonretarded adoloscents to follow directions that were comprised of one, two, three, four, and five components. Their results indicated that directions of one and five components were followed equally well by retarded and nonretarded students but that directions of the intermediate components were followed significantly better by the nonretarded students. They also studied the frequency and types of errors committed by both groups as a function of the number of directions in the set. Their results indicated that "errors committed by the retarded subjects exceeded in every category those committed by the nonretarded subjects."

Teachers working in an individualized classroom setting with both typical and exceptional learners face many problems in communicating clear directions to their students. They are working with "mainstreamed" exceptional learners who may not be able to follow a direction of more than one component and may commit errors even with simple one-component directions. In addition, they will be working with typical learners who will have little trouble with simple and complex directions. The education literature suggested developing programs in order to train learners to follow directions. The time involved in developing, implementing, and evaluating such a program would be tremendous. In an individualized setting, where teacher monitoring of all student activity is essential, it would require a great amount of time and energy to insure that each student is doing the assigned task appropriately.

There are no clear-cut solutions to this problem. The teacher working in this type of situation must be sensitive to the abilities of all students. Those with special problems and needs must be more carefully monitored than typical learners. Directions must be kept relatively simple. Directions of more than three components must be given with extreme caution and monitored carefully. Single component directions must be carefully monitored, especially with exceptional learners, to avoid mistakes. While specific programs designed to increase direction-following capability in students would be a benefit, especially in the individualized setting, it probably will never be implemented on a large scale. In any event, it is highly recommended that teachers be aware of and sensitive to the problems and needs of all their students and that students' work be monitored frequently to guarantee the success of all students' learning endeavors.

References

Brown, L., Bellamy, T., Tang, P., and Klemme, H. "A Procedure for Teaching Trainable Students to Follow Verbal Directions." In L. Brown, T. Bellamy, and E. Santag (Eds.) *The Development and Implementation of a Public School Prevocational Training Program for Trainable Retarded and Severely Emotionally Disturbed Children: Progress Report Part 1.* Madison Public Schools, Madison, Wisconsin, 1971.

Hall, G.E. *A Manual for Users of the IAST v. 2: A System of Interaction Analysis.* Austin, Texas: Research and Development Center for Teacher Education, The University of Texas at Austin, 1972.

Lent, J.R., Holvoet, J.E., Fernite, C.L., Keilitz, I., and Tucker, D.J. "Direction Following of Retarded and Nonretarded Adolescents." *American Journal of Mental Deficiency* 1973, *78*(3), 316-322.

Scheverman, N., Cartwright, S., York, R., Lowry, P., and Brown, L. "Teaching Young Severely Handicapped Students to Follow Verbal Directions." *The Journal of Special Education*, 1974 *8*(3), 22-236.

Handout 1*

Procedural directions: giving directions and procedures, telling the students how to do substantive behaviors. This would require an *immediate* student response or behavior.

Substantive means anything directly concerning the lesson. It means do it now. It does not include instructions given to be carried out later—even if only a few minutes later.

Examples:

1. "Cathy, would you go to the board and do problem 5."
2. "Read the next paragraph, Irene."
3. "Get in your groups and work on the projects you started yesterday."

This does not include statements such as:

"Now, in a minute we are going to devise our own measuring system."

Managerial directions: directions that do not deal directly with the content of the lesson. *Immediate* behavior is required.

Examples:

1. "Shut the door, Harry."
2. "You are making too much noise. Be quiet."
3. "Sharpen these pencils for me."
4. "Remain in your seats."
5. "Form a line, please."
6. "Not so loud."
7. "Would you pass these out please."

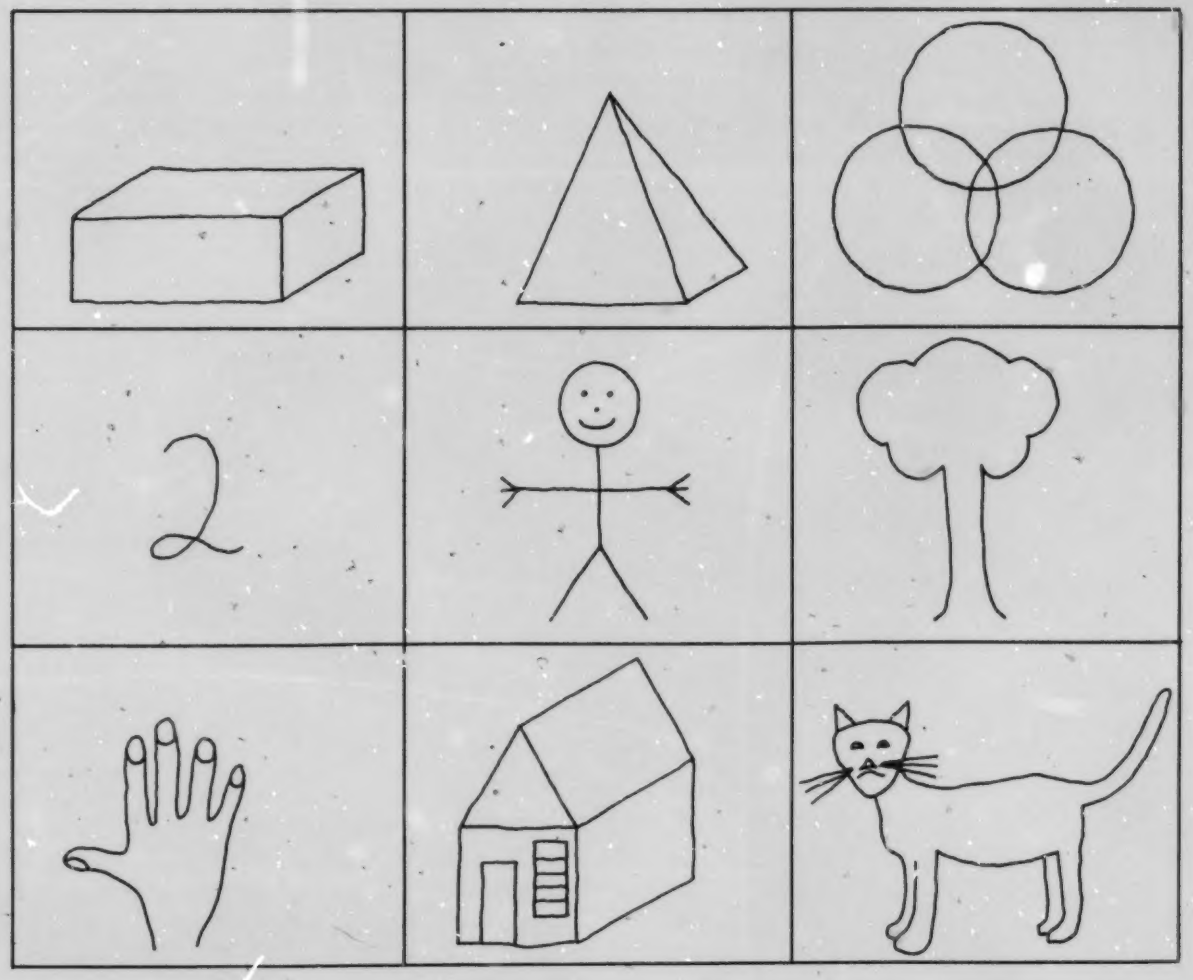
*Adapted from Hall, G.E. *A Manual for Users of the IAST v. 2: A System of Interaction Analysis*. Austin, Texas: The Research and Development Center for Teacher Education, University of Texas at Austin, 1972.

Activity 1

Communicating Clear Directions

Directions: Break class into small groups of four or five students. Pass out Activity cards, one per student, to each individual. Instruct students in each group that they will take turns directing other members of their group in drawing the object on their activity card but they *cannot name the object on the card or show what the object is to members of their group.* Directions should be of the single component variety, but students may "experiment" with more complex directions if they desire. Results should be discussed with the entire class.

Activity Cards



Lecturing

Lecturing is much misunderstood and much maligned. Yet, when done correctly, it is quite helpful to students and is appreciated by them. Lecturing's negative connotations have arisen through misunderstanding about how and when to use the technique.

Basically, lecturing is a presentation activity with attention focused on predefined content. It usually involves several teaching skills: set induction, closure, reinforcement, use of questioning techniques and varying the stimulus. Although the teacher plays the dominant role, there are opportunities for student participation.

Lecturing is useful for the following teaching objectives:

1. **Lectures convey information.** This is especially true with information not otherwise accessible to students. For example, a lecturer may have access to books, articles, people or places (those visited on sabbaticals, leaves of absences, etc.)

2. **Lectures review and reinforce previous work.** The teacher's unique way of reviewing can reinforce student understanding of material through simple review or repetition of main points. Reviews provide the teacher opportunities to bring in more examples, references, anecdotes. etc.

3. **Lectures synthesize many sources.** Through synthesis, teachers can save students time and trouble required to read all available sources and can convey information not otherwise available. Synthesis provides students an overview or general insight into topics which otherwise might come very slowly from extensive reading of available sources.

4. **Lectures convey enthusiasm.** This touches on the techniques of set induction. The lecture itself, primarily a one-way presentation from teacher to student, can be an exciting introduction to material or an exciting presentation of material in its entirety. A stimulating presentation will reinforce students' understanding of what they already know and motivate them to delve further into a subject.

Lecturing, then, is a way of presenting material in an interesting and motivating manner, when acquisition of information is a primary objective. Because lecturing is a one-way activity, students are necessarily going to be rather passive. Thus, when the goal of the lesson goes beyond acquisition of information and seeks to get the student involved in learning, the lecture must be complemented by other activities. Then, the lecture introduces and is followed by activities in which the learner takes part actively—discussions, laboratories, writing papers, field trips, etc. The reason: for a person to learn anything, he must become involved with it. For example, if a person wants to play golf, he must play golf. He cannot read about golf and expect to become a good golfer. In

a similar way, a teacher cannot simply lecture about good writing. Students must be given the opportunity to write.

To enable students to reach established lesson goals, lecture plus complementary teaching methods may be useful for the following activities:

1. When instructional goals involve the application of skills.
2. When instructional goals involve changing of attitudes or behaviors.
3. When information presented is to be retained by students for a long period of time.
4. When lecture material is very complex or abstract. Students may need an opportunity to apply it and use it so they can learn the higher order relationships of the materials.

Characteristics of an Effective Lecture

In planning a lecture, a teacher should consider several points.

One significant concern is the disposition of the audience—the listeners' abilities, interests, personalities and motivations. Verbal communication must be interesting and understandable. A vocabulary appropriate for college freshmen may need adjustments to students of graduate level. Anecdotes too, may differ. Motivation for students in general chemistry may be markedly different from that of the student preparing for medical school.

Another audience consideration relates to the effect of the time of year or time of day on the student's propensity to listen. The temper of a classroom the day before a mid-term exam may differ from that the day after a long vacation. Such information needs to be acknowledged in planning the length of a lecture, the amount of material to be covered, and the degree of difficulty.

A third aspect considers the pace of the lesson. The lecture should include periodic pauses for students to assimilate information, revise notes or ask questions. While preparing the lesson plan, a teacher should consider when to vary the stimulus. This change of pace may simply be a variance in pitch, loudness, intensity or speed of delivery. Or change may extend to the use of visual devices such as blackboard, overhead projectors, films or film-strips.

With regard to the speed of delivery, while presenting a particularly difficult concept, the lecturer may slow down the presentation. During review, material may be skimmed at a fairly rapid pace.

Lecture length needs consideration. Even a good lecturer with an interesting topic tends to take too long. The attention span of most adults is about 20 minutes, so that in addition to pacing the lecture, a pause after about 20 minutes should be allowed. Lectures should be kept fairly short—from 30 to 40 minutes at the most. Learning begins to diminish after 15 minutes, and in about 45 minutes interference occurs and the learner may begin to lose much of what was acquired earlier without carefully taken notes.

McKnight, P.C., Schick K. and Cleaver, G.A. *On Teaching*. Lawrence, Kansas: University of Kansas, Office of Instructional Resources, 1975. Reprinted by permission.

19

Perhaps, the simplest test of lecture appropriateness asks whether or not the subject matter could have been presented more efficiently and usefully in a book or in some other manner.

Set Induction

The goals of set induction are 1) to establish a coherent, cognitive frame of reference for students so they know what will happen and what is expected of them and, 2) to increase involvement in a pedagogical activity by stimulating interests and facilitating abilities to interact in the lesson.

Frame of Reference. Set induction is a process by which a teacher indicates the purpose and direction of a particular lesson to general course content. In so doing, the teacher intends to clarify the purpose and nature of specific activities within the overall subject. Set enables students to plug in and become more interested in the lesson.

The term "set," or "advanced organizers,"[1] refers to the establishment of rapport or cognitive relationship of pupil-teacher-content in order to obtain immediate involvement in a lesson. It is a frame of reference within an entire lesson or unit. The teacher, interested in students seeing the nature, intent and direction of activities to follow, hopes these become more understandable and intrinsically interesting.

Although set induction may occur at various times, it is most frequently used to begin a lesson, semester, unit, lesson sub-section, or student panel discussion; to introduce a film; or to precede a homework assignment.

However, set induction not only deals with what is to come in the present lesson, but also the content of previous lessons. It ties present learning and learning activities to prior learning, enabling students to see where the present lesson fits into the overall plan and purpose of a course since each activity is part of a larger context and should not be isolated. Thus, set induction helps achieve a smooth transition from past knowledge to new knowledge.

Also, when used to clarify lesson purposes and procedures, set induction prevents confusion and vagueness, a state of mind which may lead to boredom and frustration.

Increasing Student Involvement. Motivation is often difficult in lessons, particularly in lectures, because it is difficult for teachers to point out the relationship between present performance and future rewards.[2]

Set induction helps get students involved in a lesson. A person involved becomes more committed. More interest generates more willingness to give time and energy. Thus, students become more interested in learning course material. Just as a person who wants to learn to play golf must actually play golf, and a person who wants to learn to write must actually write, likewise, a student who wants to learn about European History must choose a time period, read about it, and become involved with those events, personalities, theories, etc.

Hopefully, set induction will enable the teacher to point to the intrinsic value of a lesson or course to students, thereby conveying why it is worth getting involved with the coming lesson. However, some instances may prove very difficult to connect clearly between the student's present performance and future rewards. In such cases, set induction may need to emphasize extrinsic as well as intrinsic rewards. Extrinsic rewards can help involve the student with the subject matter. Then, hopefully, the student will see the intrinsic value of the subject. In other words, getting the person into the situation is the first task. Thus, if it takes red stars or the promise of film strips and films, etc., to get a student interested, it may be appropriate, so long as the teacher intends to shift the student from an extrinsic reward schedule to intrinsic rewards later.

How to Construct a Set. In planning set induction, there are two phases to keep in mind. The first, or "pre-active"[3] phase, involves activities the teacher undertakes before the lesson. The "inter-active" phase involves activities at the beginning or during the lesson.

In planning, the teacher initially should consider the "givens," that is, the conditions, goals and needs of the classroom, teacher and students. Givens include:

1. Information about the *subject*—the curricular goals and content.
2. Information about the *teacher*—for example, a teacher's planned absence the following week should be reflected in his plans.
3. Information about the *student*—ability levels, prior experience, personal characteristics, etc.—all things affecting student interaction with the subject and the lesson. The amount of information the teacher needs about a student and the appropriate means of getting it involves an important teaching skill.
4. Information about the *classroom* setting—the kinds of equipment, chairs, etc.

Utilizing information from these four sources also helps the teacher clarify personal objectives for forthcoming learning activities. This is perhaps as important as the clarity of the activities to students, because if the teacher is aware of and confident about what is going to take place, it will be much easier to keep teacher activities and student activities directed to those ends. Serendipitous happenings can more likely fit into the overall lesson, rather than cause diversion or regression.

Because set induction is primarily based on objectives, these deserve careful attention. Set induction is the place where objectives are first

[1] Ausubel used the term "advanced organizer." See D. P. Ausubel, "Learning by discovery: rationale and mystique," *Bulletin of the National Association of Secondary-School Principals*, 1961, 45, 18-58.

[2] This concept is embodied in a theory developed by Arthur Stinchcombe in his book, *Rebellion in a High School* (Chicago: Quadrangle Books, 1964).

[3] "Pre-active" is attributed to Philip Jackson, *Life in classrooms* (Chicago: Holt, Rinehardt and Winston, 1968).

exposed to the students and provides a structure by which students work toward objectives. In planning objectives, it might be useful to make two columns on a sheet of paper and fill them out according to the following schema: column one, student objectives; column two, teacher objectives or teacher procedures, with perhaps the phrase "by means of the following I will help students reach their objectives." In this way the teacher can distinguish between procedural activities which are actually not cognitive objectives and those things which are the real intent of the lesson, that is, the concepts or ideas that students are to be exposed to. In writing objectives, the teacher may wish to differentiate between cognitive objectives and affective objectives. Of course, it is entirely appropriate to develop with students their particular roles in a course and their responsibilities in terms of lesson assignments.

Making the set induction is the teacher's responsibility, but certainly the students may participate. Since the goal is to get students interested in and knowledgeable about the subsequent learning activities, their participation at the beginning of the lesson would be advantageous.

Audio-visual aids which implement the set may be decided at this time.

In writing out procedures or points to make during set induction, the teacher might make two columns: one, the activity; and, two, what is needed to carry out the activity—who is to do it or how it is to be done (for example, audio-visual aids, etc.).

Assessment of the Success of the Set Induction. In assessing the usefulness of the set, the teacher may carry out the following kinds of activities: 1) ask the students if they understood the objectives and plans set out by the teacher and/or by themselves, 2) observe the student interest level—an overall impressionistic and intuitive assessment, but nonetheless, valuable, 3) determine if students recognize the relationship between content forthcoming and the main body of material previously discussed. At the end of the unit, the teacher's assessment of student performance should reflect how well the unit succeeded, including, in some part, the usefulness of the set induction.

Additional Characteristics of Set.

1. Set induction should use some key terms to be used in subsequent presentations. This alerts the student to hearing them the next time in the lesson and provides the connection between the introduction and the body of the activity. It provides familiarity with terminology and concepts used in the lesson. In other words, it helps construct a framework on which to build subsequent knowledge.
2. Set induction can be written on the board, for example, or on a ditto handout to provide a visual framework for the student.
3. The teacher may wish to give vocal or physical emphasis to important points or words by his inflection, pauses, or gestures.

With regard to tying a lesson to previous material, phrases such as "you will remember in yesterday's class, Sara, that we talked about. . ." or "Bob, you remember what Sara said yesterday. . ."

At the end of set induction, students should be aware of what activity is to take place, informed about how they will learn from it, and how their performance will be assessed at the end of it. Set induction establishes a framework that facilitates greater ease of and greater productivity from the subsequent teacher-class interaction. It is both a cognitive and an affective process which gives students a direction for what is to come.

Closure

The skill of closure is complementary to the skill of set induction. In addition to summarizing the activities and conclusions that have gone before, as in a lesson, unit or semester, closure enables the teacher and class to tie the content just completed to work previously done and/or work to follow. In this way, the student is encouraged to see the relationship between a completed part and the larger body of work. Thus, there is no time stipulation about closure. Closure activities may take place five minutes into a lesson, at the end of fifteen minutes or at the end of a lesson period. Closure is appropriate whenever a unit of instruction has been completed. Different types of closure may vary between those ending a brief instructional period as compared with those ending a semester or a year.

Characteristics of Closure:

1. Closure ensures that students have understood the purpose of the unit and its relation to overall goals of the course. Therefore, although the teacher usually plans closure activities, students should be given opportunities to participate in order to reinforce learning.
2. Closure provides a synthesis of principles and concepts of one unit with those of previous or forthcoming units, thereby helping students generalize and transfer their learning to new situations.
3. Closure permits the teacher and students to identify any uncertain aspects of the completed unit and to provide concept clarification.
4. Closure provides an opportunity to suggest additional materials and activities for students especially interested in the topic.
5. Closure provides a reinforcing function in the sense that it allows the teacher to reward the students' learning and their interest in the unit. Teachers help students to recognize their accomplishments and to perceive teacher approval of these accomplishments.

Discussion Skills

The use of discussion sessions in university teaching has been recommended enthusiastically for many, many years. The technique holds a

favorite place for those who reject the formality of the lecture in favor of the more personal nurturant atmosphere of a teacher and several students discussing topics together. The problem, however, is that although the intent is to attain a nurturant, positive atmosphere, the actions taken by the teacher are often inadequate or even dysfunctional to such goals. In other words, it is not enough simply to reject the seeming formality and impersonality of lectures in favor of a more person-oriented method. Good intentions are not enough. There must be some carefully considered and planned alternatives to the lecture if the discussion group is to be useful to students' personal and academic growth.

It all goes back to the assumption one makes about the nature of teaching. The assumption, discussed previously, is that there is no such thing as the all around best teaching method, but rather there are specific approaches which can be chosen when given certain goals. It is not a question of the lecture versus discussion method but rather one of "when is each appropriate?" A lecture may be more important, more person-oriented and more positive if carried out well, than a poor discussion.

The following describes basic procedures and significant factors to consider in leading discussion groups.

First, as with all educational activity, the teacher must carefully plan for discussion. This may seem unnecessary or even dysfunctional to the idea, but in truth, a good discussion leader will spend much time planning or anticipating the kinds of topics likely to be brought up. The leader not only considers the class as a general unit, but also considers means to allow specific individuals to participate and be rewarded for doing so. This emphasizes a fundamental skill in leading discussion groups—reinforcement, which gives a person a chance to participate and rewards both the effort and contribution to the activity.

Among anticipatory factors for the discussion group's intent and direction, consider the following:

1. *Group size.* The larger the group, especially beyond eight members, the more non-participants there are likely to be.
2. *Grading techniques.* Are students graded for simple participation or for numbers of participations? Quantity scoring produces competition to speak, precludes some speakers and deters careful listening. It is probably better not to evaluate people on the number of times they contribute in discussion groups.
3. *Instructional leadership.* Remember, the instructor performs the discussion leadership role, perhaps with limited commentary, and should always be ready to alter, unobtrusively or overtly, discussion direction if divergences are not useful.
4. *Discussion-dominating students.* Instructors should anticipate how to handle students who tend to dominate classroom discussions at the expense of those who might otherwise participate but are hesitant to do so. Discussion gives students a chance to interact directly

Handout 2

Characteristics of Set Induction

1. In planning to use set induction, the teacher should consider the following:

   a. Information about the subject; i.e., curricular goals and content.
   b. Information about the teacher; e.g., planned absences.
   c. Information about the student; e.g., ability levels, prior experience, etc.
   d. Information about the classroom setting; e.g., equipment, physical arrangement, etc.

2. Objectives are first exposed to students during set induction. A structure is provided by which students work toward the objectives.

3. In assessing the set, the teacher may use one of the following:

   a. Ask students if they understood the objectives.
   b. Observe student interest.
   c. Determine if students recognize the relationship between forthcoming content and previously covered material.

4. Set induction should use some key terms to be used in subsequent presentations.

5. Set induction activities can be written on the board or on a handout to provide a visual framework for students.

Handout 3

Characteristics of Closure*

1. Ensures that students have understood the purpose of the topic presented and its relation to overall goals of the course.

2. Provides a synthesis of principles and concepts of one unit with those of previous or forthcoming units thereby helping students generalize and transfer their learning to new situations.

3. Permits the teacher and students to identify any uncertain aspects of the completed unit by seeing what doesn't fit and to provide concept clarification.

4. Provides an opportunity to suggest additional materials and activities for students especially interested in the topic.

5. Provides a reinforcing function in the sense that it allows the teacher to reward the students' learning and their interest in the unit.

6. Provides the feeling of completion. Makes a "unit" into a "whole."

*Reading 1, McKnight, Shick, & Cleaver.

Feedback Sheet No. 1

Direction Giving and Cueing Feedback Sheet

Directions: Fill out the upper part of this sheet prior to teaching the lesson. Give the completed sheet to your partner or microteaching supervisor, who will fill out the bottom part and return it to you. Use the back of this sheet if more space is needed. Turn in the completed sheet to your instructor.

Name _____

Topic _____

Objectives:

Describe how directions will be given:

Observer Feedback

Name _____ (partner or microteaching supervisor- circle one)

1. Did the teacher reach his/her expectations as stated above? Explain.

2. Were students able to follow the teacher's directions? If not, why?

3. How could the direction giving procedure be done differently so that students would understand wha to do?

Feedback Sheet 2

Set Induction Feedback Sheet

Directions: Fill out the upper part of this sheet prior to teaching the lesson. Give the completed sheet to your partner or microteaching supervisor, who will fill out the bottom part and return it to you. Use the back of this sheet if more space is needed. Turn in the completed sheet to your instructor.

Name _____

Topic _____

Objective(s):

Description of set induction:

Observer Feedback

Name _____(partner/microteaching supervisor-circle one)

1. Did the teacher reach his/her expectations as stated above? Explain.

2. Did the set induction activity appear to generate student interest? Explain.

3. How might the set induction activity be done differently, to generate more student interest in the lesson?

Feedback Sheet 3

Closure Feedback Sheet

Directions: Fill out the upper part of this sheet prior to teaching the lesson. Give the completed sheet to your partner or microteaching supervisor, who will fill out the bottom part and return it to you. Use the back of this sheet if more space is needed. Turn in the completed sheet to your instructor.

Name _____

Topic _____

Objectives:

Description of closure:

Observer Feedback

Name _____ (partner/microteaching supervisor-circle one)

1. Did the teacher reach his/her expectations as stated above? Explain.

2. Did the closure activity appear to motivate and interest students? Explain.

3. How might the closure activity be done differently to generate more student interest?

Feedback Sheet 4

Differential Reinforcement Feedback Sheet

Directions: Fill out the upper part of this sheet prior to teaching the lesson. Give the completed sheet to your partner or microteaching supervisor, who will fill out the bottom part and return it to you. Use the back of this sheet if more space is needed. Turn in the completed sheet to your instructor.

Name _____

Topic _____

Objectives:

Description of reinforcement techniques to be used:

Observer Feedback

Name _____ (partner/microteaching supervisor-circle one)

1. Did the teacher reach his/her expectations as stated above? Explain.

2. Did the reinforcement activity appear to generate student interest? Explain.

3. How could the reinforcement techniques have been done differently to motivate students to a greater degree?

VERBAL AND NONVERBAL COMMUNICATION WITH LEARNERS

by
Joel A. Colbert and William LaShier
University of Kansas

This module will provide preservice teachers with a systematic procedure, i.e., interaction analysis, for describing and classifying verbal and noverbal communication between teacher and learner. By studying our communication patterns with students, not only do we have a record of what has taken place in our classes, but we have the foundation upon which change can occur and be monitored. There is research evidence that indicates that interaction analysis is a tool for changing teacher communication patterns, with the result that more effective teaching is possible. Communication patterns are particularly important when one works with learners who have special educational needs.

Student Outcomes

Upon completion of this module, the student will be able to demonstrate verbal and nonverbal strategies for communication with learners.

Instructor Information

Prerequisites:

Before beginning this module, students should be able to describe behavioral characteristics of developmental patterns of normal and atypical learners, plan with learners for acceptable standards of behavior, give clear directions and use set induction, cueing and closure.

Organization:

The teaching time for this module is three to five hours. There are 18 enabling activities in the module, each of which deals with an aspect of interaction analysis. The activities are organized into readings, all of which are required, and class discussions, which are incorporated to ensure student understanding of a complex topic. Both readings and discussions are directed toward the final activity which calls for students to transfer behavior codes to a matrix, using a teaching or microteaching (video taped) situation.

Content Overview:

The content of this module includes various verbal and nonverbal systems categories. Specifically, the content includes:

1. An explanation of interaction analysis.
2. Flander's Interaction Analysis categories.

3. An explanation of nonverbal communication.

4. Love and Roderick's nonverbal system categories.

5. An explanation of the use of an interaction analysis matrix.

6. An explanation of the calculation of interaction analysis behavior ratios.

Suggestions for Teaching:

The content of this module is closely related to that found in the module on directions, set induction, cueing and closure, and differential reinforcement of appropriate behaviors. Therefore, the instructor may find it helpful to present these two modules "back to back." Indeed, the two may be incorporated into one, particularly for the use of the teaching/microteaching situations.

Students should be required to read the first reading, "Interaction Analysis in the Classroom" by G. Morine, before the module is initiated. Because the topic in the module is a fairly complex one, and because the readings do not relate specifically to the exceptional child, the instructor will need to use discussion time to explain and elaborate on the readings and to apply the use of interaction analysis with the exceptional learner.

Instructors should put the following books on reserve, as three of the readings are included in these sources:

Galloway, C. *Silent Language in the Classroom*. Bloomington, Indiana: Phi Delta Kappa Foundation, 1976.

Flanders, N. *Analyzing Teacher Behavior*. Reading, Mass.: Addison-Wesley Publishing Co., 1970.

Instructors should have a video tape or film of an elementary/secondary classroom which shows teacher/learner interaction

Since a video taped teaching session is also required for each student, the instructor may want to use those that have been made for preceding modules. If this module is incorporated into the one on class directions, etc., interaction analysis may be used with the taped activities for that module

Evaluation:

No formal evaluation is included in this module. The final activity, coding verbal and nonverbal behaviors and calculating the ratios, can be used for evaluation purposes.

VERBAL AND NONVERBAL COMMUNICATION WITH LEARNERS

by
Joel A. Colbert and William LaShier
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Prospectus

This module will provide preservice teachers with a systematic procedure, i.e., interaction analysis, for describing and classifying verbal and nonverbal communication between teacher and learner. By studying our communication patterns with students, not only do we have a record of what has taken place in our classes, but we have the foundation upon which change can occur and be monitored. There is research evidence that indicates that interaction analysis is a tool for changing teacher communication patterns, with the result that more effective teaching is possible. Communication patterns are particularly important when one works with learners who have special educational needs.

Student Objectives	Enabling Activities
1. The student can define the categories used in Flanders' Interaction Analysis verbal classroom observation system.	1. Reading 1, Morine, pp. 75-95. 2. Reading 2, Flanders, pp. 1-27. 3. Memorize FIA categories. (Handout 1)
2. The student can define the categories used in Love and Roderick's nonverbal classroom observation system.	1. Reading 3, Love and Roderick, pp. 295-299. 2. Reading 4, Galloway. 3. Memorize Love and Roderick's nonverbal system categories. (In Reading 2)
3. The student can reliably code a videotape using the verbal and nonverbal classroom observation systems.	1. Class discussion: Discuss and give examples of each category. Also discuss the uses of verbal and nonverbal classroom observation systems with regular and special classes. 2. View: Videotape of an elementary/secondary class and code the tape twice: first using the FIA system and then using the nonverbal system. 3. Discussion: Following coding activity, discuss reliability and questions concerning procedure.
4. The student can transfer behavior codes to a matrix.	1. Reading 5, Flanders, pp. 54-86. 2. Discuss the purpose of using a matrix. 3. Class assignment: Transfer codes to matrix. 4. Handout 2, FIA matrix.

Student Objectives	Enabling Activities
5. The student can calculate the following ratios for both observation systems: Indirect/Direct Behavior, Teacher Talk/Student Talk, and Flexibility.	1. Discuss each ratio and what it provides. 2. Class assignment Calculate the ratios for the practice data.
6. The student can analyze a videotape of him or herself using Flanders' verbal system and Love and Roderick's nonverbal system.	1. Students should arrance to make a videotape of themselves teaching in a small group situation or to use a videotape already made of their teaching. 2. View the tape two times, coding verbal behaviors the first time and nonverbal behaviors the second time, transfer data to a matrix, and calculate the ratios. 3. Class discussion: Uses of classroom observation systems for changing teaching behaviors in the classroom that has atypical learners.

Readings:

1. Morine, G. "Interaction Analysis in the Classroom: Alternative Applications." in R.A. Weinberg, F.H. Woods (eds.), *Observation of Pupils and Teachers in Mainstream and Special Education Settings: Alternative Strategies*. Minneapolis: Leadership Training Institute/Special Education, University of Minnesota, 1975, pp. 75-95.

2. Flanders, N. *Analyzing Teacher Behavior*. Reading, Mass.: Addison-Wesley Publishing Co., 1970, pp. 1-27, 54-86.

3. Love, A.M. and Roderick, J.A. "Teacher Nonverbal Communication: The Development and Field Testing of an Awareness Unit." *Theory into Practice*, 10(4), 1971, pp. 295-299.

4. Galloway, C. *Silent Language in the Classroom*. Bloomington, Ind.: Phi Delta Kappa Foundation, 1975.

Interaction Analysis in the Classroom: Alternative Applications

Greta Morine
*Far West Laboratory**

Interaction analysis is one method of systematic observation. Persons who have taught in both regular and special classes, or supervised teachers in both types of classes, may find it difficult to distinguish between applications of interaction analysis that are useful for teachers in regular classes and those that are useful for special education teachers. However, clear differences are apparent in applications of interaction analysis for purposes of research and for purposes of improvement of classroom practice, and it is the latter type of application which is discussed here.

One of the major values of interaction analysis is that an observational category system provides the observer with a particular perspective of teaching. Each system or set of categories focuses attention on a slightly different aspect of behavior. As a teacher learns to use more and more different observational systems, (s)he becomes more and more aware of the complexities of classroom interaction. Unfortunately the benefits derived from such a multiplicity of perspectives are frequently lost because of the ways in which interaction analysis has been applied. Educators have not taken full advantage of the alternatives.

Over the past ten years educators have been presented with an unstated creativity task: Show me all the different ways you could use interaction analysis. Unfortunately, an examination of the variety of responses to this task will reveal very few unique or divergent ideas. The premise of this discussion is that if the alternative applications of interaction analysis were explored more thoroughly, this technique would find a much wider acceptance and a much more productive use in public school classrooms.

This paper briefly reviews the common uses of interaction analysis, as well as those that have been suggested but rarely implemented. It then explores the topic of variation or adaptation in use of interaction analysis systems, with special attention to adaptations that focus attention on individual differences in pupil and teacher responses to these differences. The purpose of the presentation is to stimulate the divergent thinking of teachers and teacher educators so that the profession can generate a wider range of alternative uses of interaction analysis as a potentially powerful tool for the improvement of education.

*On leave from California State University at Hayward

Common and Uncommon Uses of Interaction Analysis

The majority of systems for analyzing interactive teaching behavior were developed for purposes of research. The systems developers were interested in investigating typical classroom behavior, and each developer had his or her own expectations, based on either experience or theoretical explanations of behavior in other settings. The varying expectations or interests of these investigators led to a wide variety of category systems (Simon & Boyer, 1970, identified 79 such systems). Each system enables the researcher to ask a different question about classroom interaction. Today a major use of interaction analysis systems is still research, and there are still many questions unanswered (and even more yet unasked). But other important uses have developed.

Teacher Training

Interaction analysis systems are commonly used to provide feedback to teachers on the assumption that such feedback will facilitate growth in their teaching skills. The acceptance of the values of the developer of the particular category system is implicit in its usage for this purpose (Morine, 1973b). For example, the Flanders Interaction Analysis System focuses attention on direct and indirect teacher behavior, and teachers who receive feedback with this category system tend to change their behavior by becoming more indirect. The category system teaches them to value indirect teaching behavior. In many cases a particular category system is selected for teacher training because it focuses teachers' attention on behavior that the supervisor or teacher educator deems important. Attending to this behavior increases its salience or importance for the teacher.

Feedback could be provided to teachers from a variety of perspectives to enrich their conceptions of classroom interaction. Yet, it is rare to find a teacher who receives feedback from several category systems simultaneously, or a supervisor who uses the Flanders system

A publication of the Leadership Training Institute, University of Minnesota, 1975. Copies available through the Council of Exceptional Children, Reston, Virginia.

to code a lesson when the teacher is concentrating on using pupil ideas, and the Aschner-Gallagher system to code a lesson when the teacher is concentrating on stimulating divergent thought. It takes time and effort to learn a category system. For one individual to learn the categories, recording techniques, and analytic procedures of several different systems would involve a large commitment of time and energy. However this constraint to the use of multiple category systems for feedback to teachers need not be overwhelming.

Feedback could be provided through multiple category systems by the relatively simple expedient of training different supervisors or teacher educators or teachers themselves in the use of different systems. Classroom teachers have learned to consult with the art, reading, or math specialist when they have specific curriculum problems. They could learn to consult with the "indirectness" specialist or the "higher order questions" specialist when they have a specific interaction problem. If objective feedback to teachers on their interactive behavior does effect behavior change, and the evidence seems clear that it does (Flanders, 1970), why not implement this characteristic fully and provide teachers with feedback from a variety of perspectives? This alternative use has not been widely explored.

Matching Teacher Behavior and Educational Objectives

Another common application of interaction analysis to teacher training is the identification of teaching skills. Much of the skill training of recent years, and particularly that spearheaded by the regional laboratories and research and development centers, has focused on teaching skills related to interaction analysis systems. A wide variety of training materials includes using pupil ideas, praise, probing questions, and higher order questions (Joyce, Weil, Morine & Wald, 1971). Typically, this application of interaction analysis is also an uncritical acceptance of the values implicit in the category system from which the given skill was derived. The message that is conveyed by most skill-training materials is: It is good to praise pupils; it is good to ask higher-order questions; it is good to use pupil ideas. This message is too simple. It ignores the interaction between educational objective and appropriate teacher skill.

Most of the skill-training materials currently available instruct teachers in how to observe and exhibit particular behaviors without instructing the teacher when it is appropriate or effective to exhibit a behavior and when it is inappropriate or ineffective. Thus, the Flanders (1965) research that identified characteristic differences between direct and indirect teachers and related indirectness to improved

pupil achievement and attitudes has been used by other educators to create an indirect teacher model that other teachers are urged to imitate at all times.

An alternative approach would be to train teachers to use particular skills at particular times in relation to particular instructional objectives. For example, in a brainstorming session frequent use of praise may encourage pupils to suggest more divergent ideas, so the teacher might make comments like, "That's a great idea." "Wow, I never thought of that!" "That's really interesting." or "You certainly are full of ideas today." Later in the same lesson when pupils are evaluating the ideas produced and trying to choose from among them, a more appropriate skill for the teachers to exercise would be higher order questions, particularly evaluative and analytical questions. If training materials were developed to provide this type of skill instruction, the message conveyed would be, this skill is good for this purpose. Some training materials of this type are currently being developed (Morine, 1974). Interaction analysis systems used to evaluate the effects of this type of training would need to specify the instructional purpose and the phase of the lesson in which observational data were collected. This alternative use of interaction analysis has not been fully explored.

Matching Teacher Behavior to Pupil Characteristics

Most of the applications of interaction analysis discussed so far have benefited supervisors and teacher educators rather directly. Although they have not made the tasks of teacher training and teacher evaluation easy, they have made them less impossible to perform.

But educators really need to exercise their imaginations to find applications that provide direct benefits to teachers and pupils, and this problem is addressed in the remainder of this paper. The real purpose of teachers, teacher educators, and researchers is to learn more about the instructional process so that it can be improved. A critical aspect is to learn how to adapt instruction to the needs or characteristics of pupils. How can interaction analysis be applied to this problem?

Several studies have indicated that teachers react to pupil differences by varying their behavior (Hunt, 1974), even when they have not been informed about the differences. For example, Siegel and Harkins (1963) found that college students working with mentally retarded youngsters who varied in verbal ability tended to use more words, shorter sentences, and greater repetition with the low-ability children. Rathbone (1970) studied experienced teachers working with

sixth-grade students who varied in cognitive complexity, and found that the teachers used more interdependent statements with students of higher cognitive complexity. Joyce, Weil, and Wald (1973) observed experienced teachers working with elementary school children and noted that teachers used higher level information statements and negotiated less with older (intermediate grade) children. Such modifications of teacher behavior may or may not facilitate pupil progress toward educational objectives.

When appropriate, these "student pull" effects might be maximized through selective feedback to teachers. In the same manner, inappropriate teacher responses to pupils might be minimized. Teachers might become more aware of their responsive moves and the student cues to which they are responding, if interaction analysis feedback were to highlight these aspects of teaching.

Teacher Evaluation

The trend toward accountability has led to growing discussion of the use of interaction analysis systems to evaluate teacher performance. Unfortunately, an all too common practice is to collect observational data and measure them against some model of performance constructed by the school district for the purpose of making judgments about retention or merit increases. Performance models have been developed for such purposes by using the typical behavior of highly effective or experienced teachers, the knowledge and biases of supervisors, and instructional theory and research as standards, and by combinations of these procedures. Consideration of the complex interactions among teacher behavior, pupil characteristics, and educational objectives discussed in preceding sections leads us to reject such simplistic applications.

A more appropriate alternative which has been tested in some Teacher Corps programs (Ward, Morine & Berliner, 1974) is to use such performance models to diagnose skill deficiencies and prescribe training. Evaluation is then based on the teacher's ability to develop the prescribed skills. Another proposed alternative (Flanders & Morine, 1973) is for the individual teacher to develop his/her own performance model or set his/her own goal for behavior change, and then judge the effects of the change on his/her pupils. Evaluation in this instance is based on the teacher's ability to generate and conduct inquiry projects investigating the effects of different patterns of classroom interaction on pupil learning. All of these alternative uses of interaction analysis systems for teacher evaluation need to be explored further.

Adaptations for Effective Use by Teachers

To achieve these goals or others like them teacher educators need to adapt the observation systems they are using to particular purposes and make them more immediately useful to teachers. Three major problems arise in teacher use of interaction analysis systems. Each is identified briefly and some techniques to deal with each are suggested in the ensuing discussion.

Evaluative Nature

The first major problem arises from the perceived evaluative nature of standard systems. Educational researchers can pretend that they are objective and, in the sense that they record what is observable, they are objective. However, the behaviors selected for observation indicate the selector's views of what is important in classroom interaction. Teachers are instinctively aware of the values which are built into every observational system. In addition, interaction analysis systems have been used as evaluative instruments by administrators and supervisors, as well as by researchers. Evaluation is painful to us all. Self-evaluation is bad enough, but evaluation by an outside source is very threatening, particularly when it wears the disguise of objectivity. Most teachers, and particularly inservice teachers, do not volunteer for such punishment. Only the most secure among us seek such feedback actively. (This characteristic is as true, incidentally, of education professors as it is of elementary and secondary-school teachers.) The author's most successful experiences at getting inservice teachers to learn interaction analysis involved projects to collect data on other teachers, in connection with a study comparing interaction patterns of beginning and experienced teachers, and to observe student teachers working in their classrooms. Many of these inservice teachers then began to observe their own teaching behavior. Very few education professors who have learned interaction analysis for purposes of supervision or research have ever used it to study their own classroom interactions.

This tendency to avoid self-confrontation is a specific case of the general human tendency to avoid anxiety-producing situations. The problem is how to make the evaluative nature of interaction analysis less anxiety producing. Two fairly effective strategies have been developed: (a) to have teachers invent simple category systems to make initial observations of their teaching behaviors, and (b) to base all observation on comparisons of two lessons.

Teacher-devised category systems. The procedure of designing a simple category system for use in observing one's own behavior intro-

duces the teacher to the process of analyzing behavior without the threat of some outside evaluative criteria. When a teacher selects the types of behavior to be observed, (s)he is setting up individual criteria and identifying personal values.

At the Far West Laboratory, two sets of materials have been developed to assist teachers in designing individual, simple category systems (Morine, 1973a). One is a discussion guide designed for use in brainstorming sessions under the guidance of a discussion leader. The other is a programed instruction booklet designed for use by a teacher working alone or with a peer in partnership.

In either format the teacher is assisted in generating lists of teaching acts that can occur at transition points in a lesson. A transition point is defined as a point at which a shift in interaction occurs and a different speaker begins to interact. A transition can occur when conversation shifts from pupil to teacher, from teacher to pupil, or from pupil to pupil. When the teacher trainee has produced lists of possible teaching acts occurring at such transition points, (s)he is asked to organize these into groups of similar acts. The bases of similarity will vary from teacher to teacher.

Limiting the consideration of teaching acts to those occurring at two transition points gives the teacher a manageable task. As teachers compare notes on the lists of teaching acts they have produced and the categories they have formed, they develop an awareness of the variety of perspectives from which classroom interaction can be observed. Consequently, they are less apt to be threatened by standard interaction analysis systems.

Comparison of two lessons. The procedure of comparing interaction data from two lessons focuses attention on identifying similarities and differences in behavior. The teacher gets involved in analyzing the lessons and evaluation receives less emphasis.

The process which has been tested at the Far West Laboratory (Morine, 1973a) stresses variation in teaching. The teacher is asked to plan two 20-minute lessons in which (s)he will teach the same content in two different ways to two different groups of children. The teacher may select any content and any variations. The lessons are videotaped or audiotaped and then coded, using the teacher's own observation system, a standard system, or both.

Coding and analyzing the two lessons demonstrates to the teacher that (s)he can behave in different ways, that is, that (s)he has a repertoire of skills. In the comparison, almost all teachers see one of the two lessons as more effective in achieving their particular instructional objectives; thus, they have a positive reaction to the experience of observing and coding their behaviors.

The evaluation resulting from this use of interaction analysis data tends to center on particular teaching techniques rather than on the teacher. The typical conclusion is that one strategy was more effective than another in getting a desired pupil response, rather than, "I wasn't teaching very well in that lesson." Teachers have responded very positively to this strategy and it has been quite useful for dealing with the problem of the evaluative nature of interaction analysis systems.

Complexity

A second major problem in the use of interaction analysis systems by teachers is the complexity of the systems themselves. This complexity has two aspects. (a) The procedures for analyzing and interpreting data tend to be time consuming, even in systems in which instantaneous coding is used. (b) Most interaction analysis systems are designed to give as much of a comprehensive view of classroom interaction as can be approximated within reason. The concept of information overload is useful here. Teachers cannot cope with the amount of information provided by the coding of an entire lesson. Even the displays of data provided are not usually designed for easy interpretation by the teacher.

To simplify feedback to teachers, interaction analysis systems can be adapted in the following ways: Code only selected aspects of the lesson; use subscripts to identify more clearly the particular kinds of events occurring; highlight particular aspects of interaction by circling selected sequences of events, color coding, and rearranging displays of data. These adaptations can be illustrated by studying several different displays of data on one pair of lessons.

Selection. B.K., a student teacher, was concerned about increasing pupil involvement in his language arts lessons. He planned to compare two procedures for teaching fourth-grade children to use more descriptive words.

In lesson one, he gave each child a bag with an object inside. The children had to handle the objects without looking at them and to describe them to the other pupils. The pupils' initial response was to guess what the object was and to name rather than describe it. The teacher told them he wanted a description rather than identification of the object. After several inappropriate responses he demonstrated the procedure by describing an object himself. The pupils then proceeded to give descriptions of their own objects.

In lesson two, B.K. read several poems about colors to the pupils, then asked them to write a few words that would describe their feel-

ings about a color of their choice. The children wrote individual descriptions and shared them.

B.K. was particularly interested in the opening of the two lessons. He wanted to analyze the opening moves he made to get pupils involved. Rather than code the whole lesson each time, he concentrated on the first few minutes. The flow charts in Figure 1 show the interaction analysis data for these two lessons. Each chart shows the sequence of events for the first few minutes. A flow chart is read from left to right (Morine, Spaulding & Greenberg, 1971). The line on which an "X" is recorded indicates the type of teacher behavior and toward whom the behavior is directed. As the category of behavior changes, the position of the "X's" changes. Each "X" represents one second of elapsed time, so the amount of time for each category of behavior is displayed as well as the sequence of behaviors. The difference in the teacher behavior in the introduction of these two lessons is clear from a quick examination of the two flow charts.

By selecting a particular phase of the lessons for concentration, B.K. reduced the amount of interaction analysis data to be analyzed. Another teacher might pick another phase of his/her lessons for particular study. A teacher who wants to get a perspective of the whole lesson can code two minutes of interaction near the beginning, two minutes in the middle, and two minutes near the end, and get a fairly accurate picture of the variety of behavior throughout the lesson.

Subscripting. Another way to reduce the complexity and increase the readability of interaction analysis data is to adapt the categories by using subscripts or symbols to identify specific types of behavior within a major category. A teacher can invent her/his own subscripts according to the kind of information (s)he wants to collect.

In Figure 2, the same segments of B.K.'s two lessons on description are coded by using subscripts. In this instance, B.K. was interested in noting the types of behavior he used in "instructing" so that each major category was broken down to denote the amount of time spent in presenting information (P), managing or giving directions (M), and asking questions or eliciting ideas from pupils (E). "P" followed by several "X's" indicates that the teacher was presenting information for an extended period of time. "E" followed by no "X's" indicates that a brief question was asked. The addition of subscripts to these recorded data serves to indicate other differences between the two lessons in an easily identifiable way.

Subscripts can also be used to identify the behavior of particular pupils (e.g., by giving each pupil a number or by using the initial of her/his first name whenever (s)he participates interactively in the lesson). This use of subscripts would enable teachers to examine the

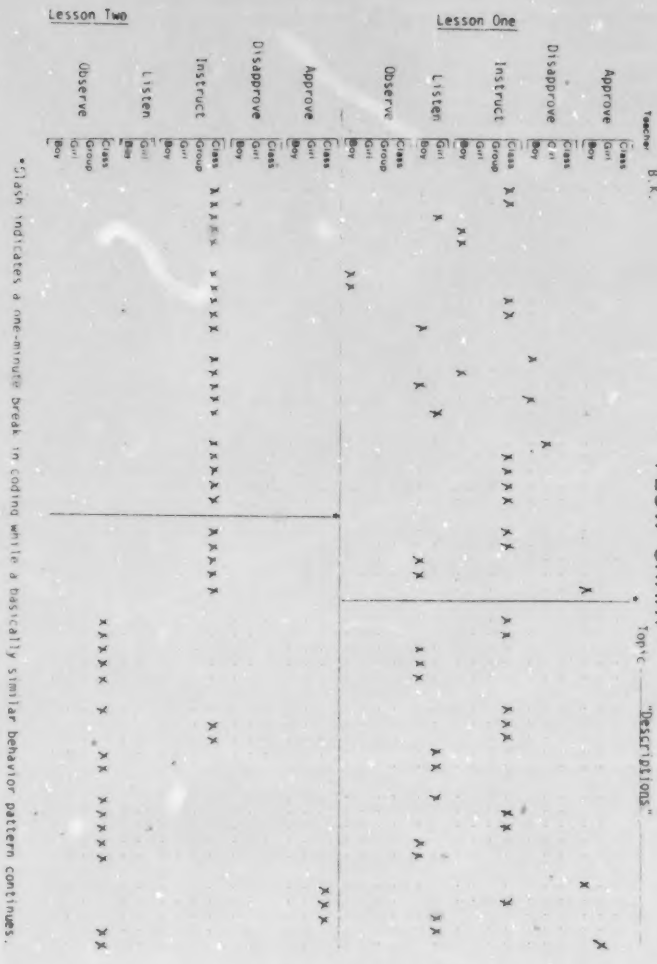

Figure 1. Interaction analysis data for two lessons.

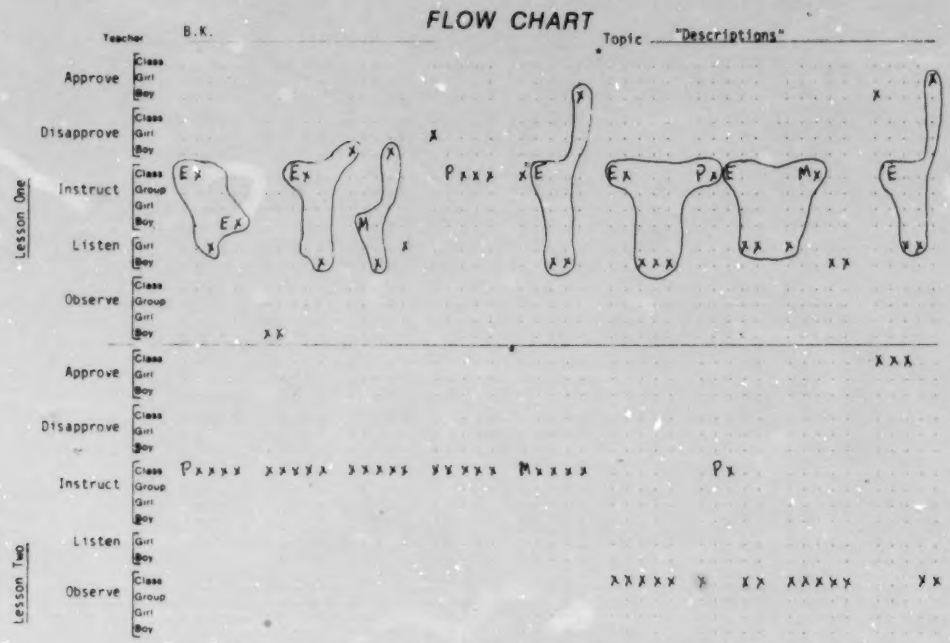

Figure 3. Interaction analysis data for two lessons using highlighting "circle."

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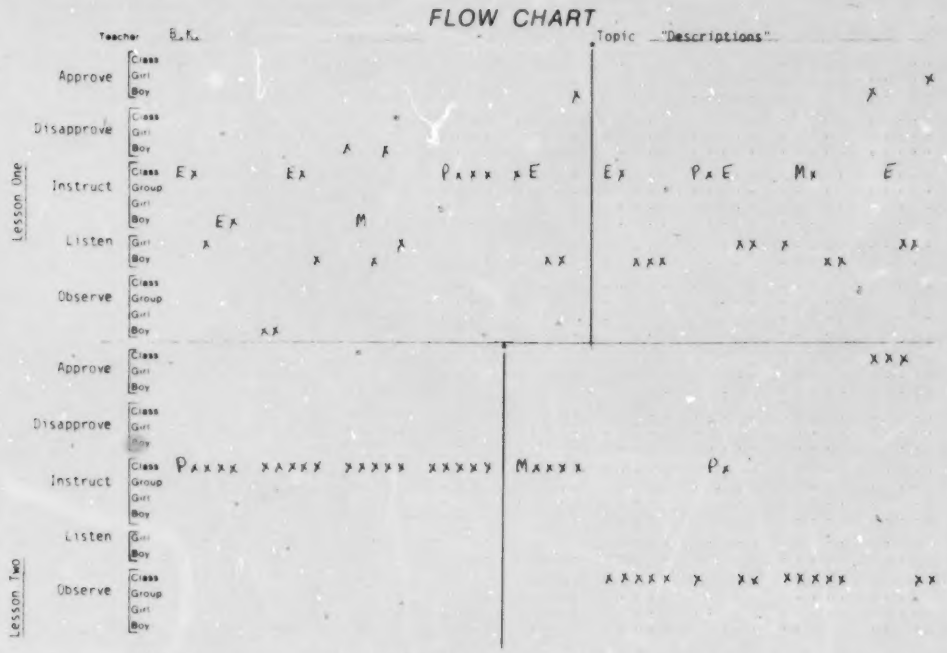

Figure 2. Interaction analysis data for two lessons using symbols.
E = eliciting ideas from pupils
M = managing or giving directions
P = presenting information

85

ways they react to particular pupils or the variation in amount of involvement by individual pupils.

Highlighting. Another method of reducing the complexity of interaction analysis data and making it simpler for teachers to decode is to highlight particular aspects of the interaction. Highlighting can be done in a variety of ways. Figure 3 shows B.K.'s lessons coded to highlight interchanges between teacher and pupil. Whenever a question is asked, a pupil responds, and a teacher reacts to that response; that sequence of events is circled. By studying the subscripts the teacher sees that in lesson 1 he has reacted to pupil responses in a variety of ways, including disapproving, approving, asking another question, giving additional information, and giving further directions. The circling of data directs his attention to his patterns of questioning and reacting without eliminating the other data.

Figure 4 presents the now familiar data on B.K.'s two lessons with the addition of shading to differentiate the kinds of pupil participation which were recorded. Instances of the oral presentation of ideas by pupils are unshaded while instances of pupils working individually at their seats are shaded. This figure is a variation of color coding, that is, the oral participation could be marked in red and the silent participation, in blue. In this way, the system could easily be extended by using other colors to denote other variables such as pupil questions and independent group work.

Another type of adaptation that can highlight certain aspects of interaction analysis data is the reorganization of categories in the display. The preceding examples have all been based on a flow chart with five major categories. Another type of display which is familiar to many teachers is the time-line organization of the Flanders Interaction Analysis Categories (FIAC), which has ten major categories.

Figure 5 shows B.K.'s two lessons coded in the Flanders system and recorded on a time-line organized to highlight teacher initiation and teacher response (Flanders et al., 1974). In this display, behavior coded on the lines below Category 4 (Questions) is teacher initiation, or behavior typical of direct teachers. Behavior coded on the lines above Category 4 is teacher response, or behavior typical of indirect teachers. In using this category system a special subscript (N) identifies nonverbal pupil responses.

Figure 6 shows B.K.'s lessons coded in the Flanders system and recorded on a time-line organized to highlight information processing (Morine, 1973b). In this display, events coded on the lines below Category 4 are instances of information-giving by the teacher. Events coded in Category 4 and above are instances of information-collecting by the teacher. A teacher studying these time-lines can readily see how

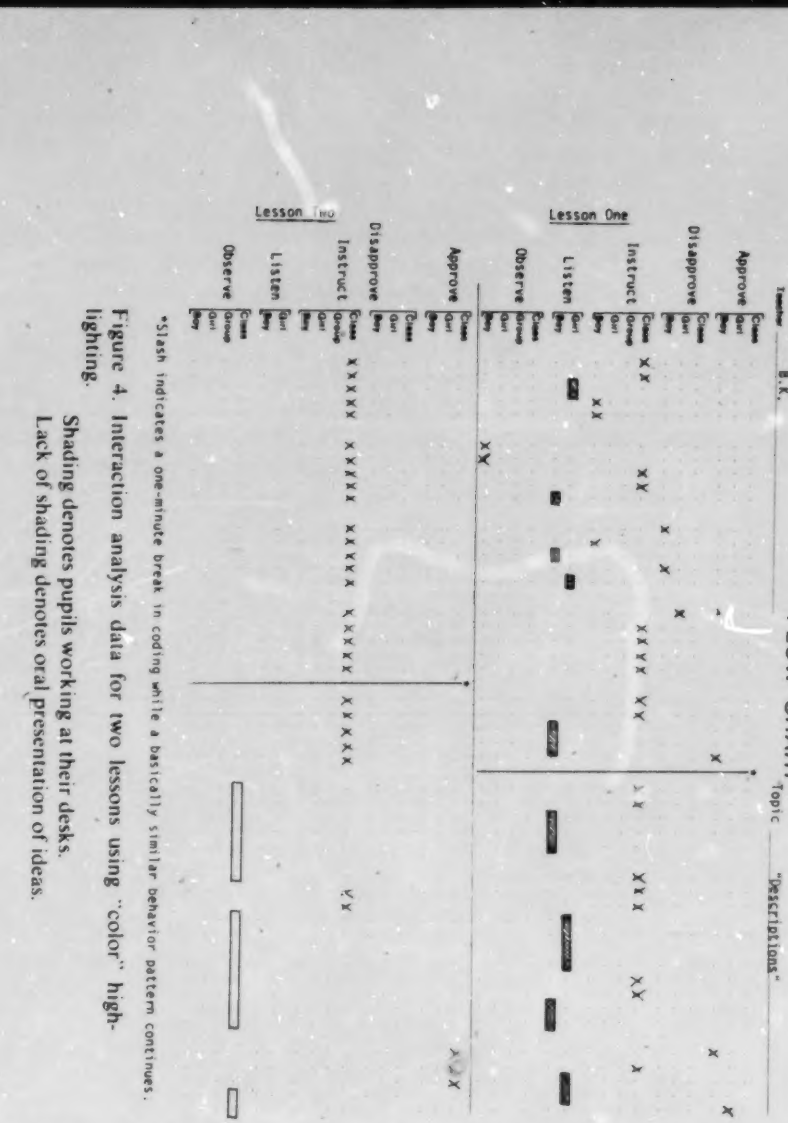

Figure 4. Interaction analysis data for two lessons using "color" highlighting.

Shading denotes pupils working at their desks.
Lack of shading denotes oral presentation of ideas.

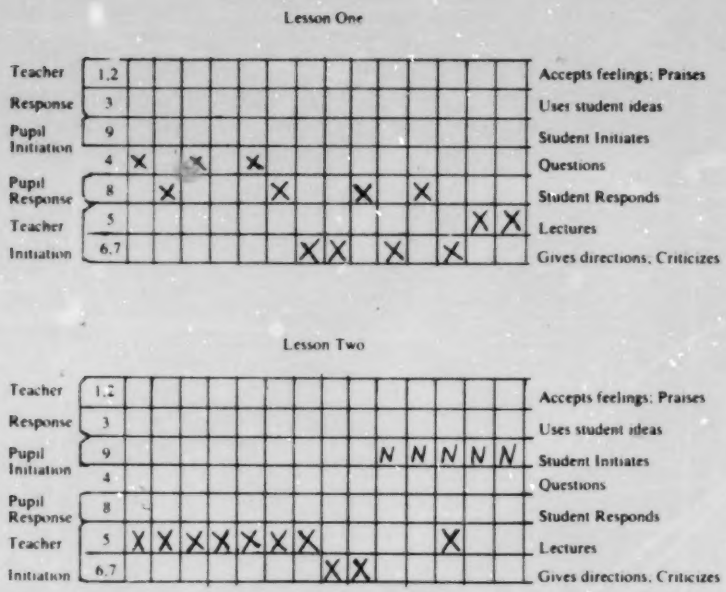

Figure 5. Interaction analysis data for two lessons—"time-line" highlighting of teacher initiation and teacher response.

N = Nonverbal responses

much time (s)he is devoting to learning about pupil ideas during the course of a lesson.

All of these variations in the display of data can be useful in reducing the complexity of interaction analysis systems. All can be used to focus attention on individual differences among pupils as well as variations in teaching behavior. They reduce information overload by focusing teacher attention on particular aspects of the available data. Teachers can identify the interests they have in relation to a given set of comparative lessons, and the data to be highlighted or subscripted can be selected on this basis.

Lack of Relevance

A third major problem in teacher use of interaction analysis systems is the frequent lack of relevance of general category systems to specific teaching objectives. This lack of relevance may be an unavoidable characteristic of a category system that is useful for observations in a wide variety of instructional settings. For purposes of research on teaching behavior, a category system needs to have broad

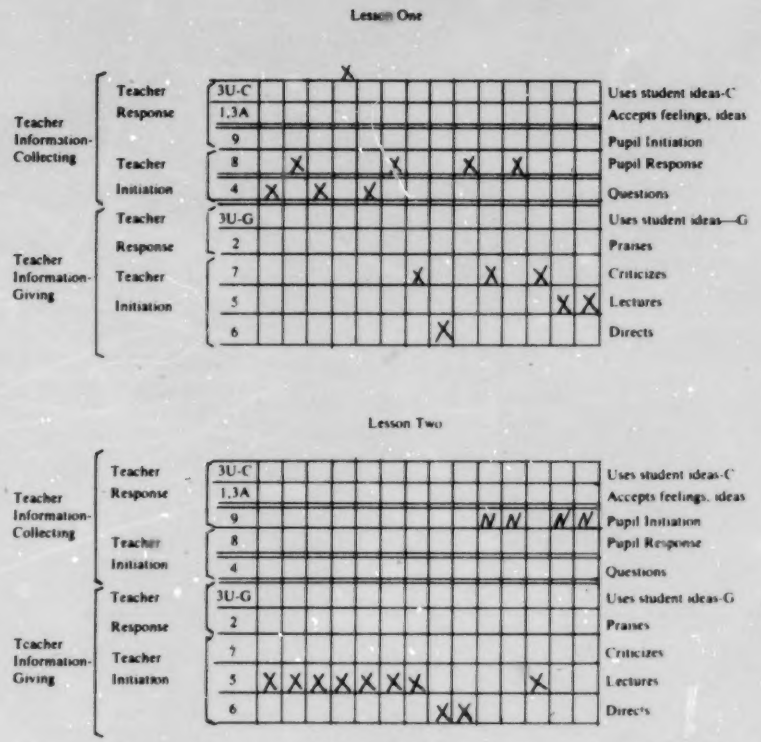

Figure 6. Interaction analysis data for two lessons—"time-line" highlighting of information processing.

N = Nonverbal responses

applicability; for purposes of feedback to individual teachers, however, broad applicability may not be such an essential quality and, in fact, may even be a detriment. If Ms. M. is teaching a discussion lesson, it may be important to her to know which children participated frequently in the discussion and which did not contribute at all. If she is teaching an inductive discovery lesson, she may prefer to know whether individual children's comments were at the knowledge, comprehension, application, analysis, synthesis, or evaluation level (Bloom, 1956). The type of data that is useful to Ms. M. in determining her ability to behave as planned and to achieve the kinds of desired reactions from pupils will vary from lesson to lesson.

Interaction analysis systems can be made more relevant to the immediate instructional goals of teachers in several ways. One ap-

proach is to use a basic system and invent subscripts liberally to vary the type of information that is collected. Another possibility is for teachers to invent individual category systems for particular purposes. Both processes have been discussed in preceding sections.

A third procedure is to provide teachers with feedback on the same two lessons from a variety of systems to help them realize that different systems provide different information. The first step in this procedure is to select a particular feedback system which will suit the instructional objective of the lesson. For example, our old friend B.K. might be presented with the data provided in Figures 2 and 6, two different category systems which preserve the sequence of events in the lesson. An additional alternative presentation of data on the same lessons might also be useful. Figure 7 is an interesting variation. Here, data has been collected from the entire lesson in both cases, but the only information collected was the teacher's reactions to the ideas presented by pupils. Again, a comparison of the two lessons is relatively simple. This type of information could easily be collected in relation to individual pupils so that instead of comparing two lessons, the teacher compares his/her responses to particular pupils.

In studying these three sets of feedback, B.K. could make a judgment on which data provided him with the most useful information for his immediate purposes. At a later time he might decide that another type of data would be more useful for another purpose. Until he is introduced to a variety of types of feedback, however, he will not have the necessary knowledge to make such judgments.

Adaptations to Answer Alternative Questions

The preceding suggestions represent a sampling of methods for adapting interaction analysis systems to make the types of feedback received by teachers more useful and varied. The types of questions that teachers are encouraged to ask about classroom interaction can also be varied. At least three types of questions can be asked and interaction analysis data can be a useful tool for answering them.

A *descriptive* study describes the teacher's behavior under specific circumstances. In this instance interaction analysis is analogous to a mirror. It reflects an image.

A *relational* study is a study of what pupils do when the teacher acts in a particular way, that is, it looks for relationships between teacher and pupil behavior. In this instance, interaction analysis is analogous to a graph in that it measures and displays relationships.

An *evaluative* study compares two alternative patterns of teaching behavior to determine which pattern comes closest to achieving the

	1	2
3U-C Using Student Ideas—Asking for:	Totals	
Clarification-		7
Paraphrasing-	1	3
Additional Information-	12	
Self-Evaluation-		
Evaluating Others' Ideas-	1	
	14	10
1,3A Accepting	Totals	
Repeats comment	26	12
Writes on board	12	
Accepts comment	5	
	43	12
3U-G Using Student Ideas—Giving Information by:	Totals	
Summarizing	4	
Relating		
Identifying	1	
	5	
2; 7 Evaluating Student Ideas	Totals	
Praising	2	15
Criticizing	8	
	10	15

Figure 7. Teacher reactions to pupil ideas: tally sheet.

desired results in pupil behavior. In this instance, interaction analysis is analogous to a map in that it charts location in relation to destination.

These three types of studies are illustrated in Table 1 to indicate the different questions that might be asked in regard to the same general topic.

Most teachers who are just beginning to study their own teaching will want to start with descriptive study projects. Teachers previously involved in directed training that has included observations of their own behavior may want to begin with an evaluative study project. Teachers who want to examine individual differences in pupils probably should try a relational study project. For each type of question the teacher will need to collect different data. The ability to adapt interaction analysis systems for such purposes is critical. The types of

Table 1

Types of Study Questions

General Topic	Descriptive Question	Relational Question	Evaluative Question
Levels of Thinking	Do I ask my pupils questions that require different levels of thinking?	Do the same pupils volunteer to answer both high-level questions and low-level questions, or are different pupils volunteering for different types of questions?	Which pattern results in more pupil participation: asking a series of low-level questions (easy to answer) or asking a series of high level questions (make pupils think)?
Dealing with Incorrect Answers	What do I usually do when a pupil gives a wrong answer to my question?	When I tell a pupil his answer is wrong, how often does he volunteer to answer again in the same lesson? Do different pupils react differently?	Which pattern results in more pupils correcting their own wrong answers: asking a pupil to explain his wrong answer without telling him it's wrong, or asking pupils, "Are you sure?" after *every* answer whether it is right or wrong.

adaptations that have been suggested here can be used to respond to this need.

Conclusion

Interaction analysis is a useful tool for teachers. But its use will not be maximized unless teachers and teacher educators are inventive and creative in the adaptations they make for their purposes. This paper has described some adaptations that have been developed to make interaction analysis more useful in specific situations. As many other alternative adaptations exist as there are alternative situations. Imaginative and creative educators need never run out of ideas for new uses of interaction analysis.

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Handout 1

Flanders' Interaction Analysis Categories

Teacher Talk	1.	*Accepts feeling*. Accepts and clarifies an attitude or the feeling tone of a pupil in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.
	2.	*Praises or encourages*. Praises or encourages pupil action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "um hm?" or "go on" are included.
	3.	*Accepts or uses ideas of pupils*. Clarifying, building, or developing ideas suggested by a pupil. Teacher extensions of pupil ideas are included but as the teacher brings more of his own ideas into play, shift to category five.
	4.	*Asks questions*. Asking a question about content or procedure, based on teacher ideas, with the intent that a pupil will answer.
	5.	*Lecturing*. Giving facts or opinions about content or procedures; expressing *his own* ideas, giving *his own* explanation, or citing an authority other than a pupil.
	6.	*Giving directions*. Directions, commands, or orders to which a pupil is expected to comply.
	7.	*Criticizing or justifying authority*. Statements intended to change pupil behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
Pupil Talk	8.	*Pupil-talk—response*. Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited.
Initiation	9.	*Pupil-talk—initiation*. Talk by pupils which they initiate. Expressing own ideas; initiating a new topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.
Silence	10.	*Silence or confusion*. Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

Handout 2

Interation Analysis Matrix*

Category Columns

	Category	1	2	3	4	5	6	7	8	9	10	Total
Teacher	1											
	2											
	3											
	4											
	5											
	6											
	7											
Pupil	8											
	9											
	10											
	Total											

*Flanders, N. *Analysing Teacher Behavior*, Reading Mass.: Addison Wesley Publishing Co., 1970.

QUESTIONING TECHNIQUES FOR THE CLASSROOM

by
Walter Smith and Jeannie Kleinhammer
University of Kansas

Teachers spend a good deal of time asking questions, and occasionally even learners get to ask questions. Some questions start the lesson and focus the learners' attention on the task at hand, e.g., "What have you seen happening to the moon during the last month that you have been watching it?" Some questions are aimed at finding out just what the learners already know about the subject, e.g., "If I add more salt to the water, will the salt all dissolve?" Some questions build on learners' previous responses, e.g., "Why did you say we shouldn't plant our beans there?" Questions can be used as an evaluation of what has been learned, e.g., "How would you go about estimating the robin population in Thompkin's Park?" Still others have the intent of motivating learners, e.g., "Would you like to find out why it has been raining so much lately?" We may even use questions to "wake up a learner" e.g., "John (who has not been listening), what happens when we move the seesaw over like this?"

Learners who have special educational needs must be considered carefully when teachers ask questions. Often such learners are not able to understand what the teachers says or to translate or fill in the missing parts of the questions. Teachers who have exceptional learners in their classrooms must be particularly careful about questioning. In order to meet the special needs of special learners, teachers should develop skills in all facets of questioning techniques. This module will help preservice teachers accomplish this. Since teachers will work on skill in questioning throughout their careers, this module should be viewed as a starting place, not a finishing one.

Student Outcomes

Upon completion of this module, the student will be able to use appropriate questioning techniques with normal and atypical learners.

Instructor Information

Prerequisites:

Before beginning this module, students should be able to describe behavioral characteristics of normal and atypical learners, make curricular choices based on appropriate learning theories, meet the needs of individual learners in curriculum areas, individualize instruction, and use a variety of verbal and nonverbal ways of communicating with learners.

Organization:

Four required readings and three activities are included in this module which is organized so that the activities are based on and use the materials found in the readings. All required readings should be placed in an educational library for student use. Completion of the activities in the module will take approximately

four hours, if used in a methods class. Although the module is designed for methods classes, it can very easily be used in a practicum or student teaching situation. If it is used in either of these, it can be presented as an independent activity for students who can work with instructor supervision.

Content Overview:

Included in this module is the basic content considered necessary to help preservice teachers acquire skill in questioning. The content includes:

1. Writing questions for the cognitive domain; knowledge, comprehension, application, analysis, synthesis, evaluation.
2. Planning for questioning.
3. Format for short-answer and discussion questions.
4. Oral questioning.
5. Types of questions: managerial, rhetorical, closed, open.
6. Self-evaluation instrument for rating questions.
7. Discovery technique inventory.
8. Analysis of questioning behavior.

Suggestions for Teaching:

For this module the instructor will want to have available elementary or secondary classrooms in which questioning behavior can be observed and/or practice. If classrooms are not available, it is possible to complete this module using a micro-teaching situation, with students observing each other and recording an analysis of questioning behavior. Special attention should be paid to the last activity in the module, since this is one that will help students relate what has been acquired in this module to the exceptional learner in the regular classroom.

Evaluation:

No formal evaluation is included in this module. It is possible, however, to use the three required activities as evaluation instruments.

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Prospectus

Teachers spend a good deal of time asking questions, and occasionally even learners get to ask questions. Some questions start a lesson and focus the learners' attention on the task at hand, e.g., "What have you seen happening to the moon during the last month that you have been watching it?" Some questions are aimed at finding out just what the learners already know about a subject, e.g., "If I add more salt to the water, will the salt all dissolve?" Some questions build on learners' previous responses, e.g., "Why did you say we shouldn't plant our beans there?" Questions can be used as an evaluation of what has been learned, e.g., "How would you go about estimating the robin population in Thompkin's Park?" Still others have the intent of motivating learners, e.g., "Would you like to find out why it has been raining so much lately?" We may even use questions to "wake up" a learner, e.g., "John (who has not been listening), what happens when we move the seesaw over like this?"

Learners who have special educational needs must be considered carefully when teachers ask questions. Often such learners are not able to understand what the teacher says or translate or fill in the missing parts of the questions. Teachers who have exceptional learners in their classroom must be particularly careful about questioning. In order to meet the special needs of special learners, teachers should develop skills in all facets of questioning techniques. This module will help preservice teachers accomplish this. Since skill in questioning is one that teachers will work on throughout their careers, this module should be viewed as a starting place, not a finishing one.

Student Objectives	Enabling Activities
1. The competent teacher can describe alternative purposes for the types of teacher questions.	1. Reading 1, Carin and Sund, pp. 190-211. 2. Activity 1. 3. Class discussion: What are the cognitive levels most often used in questioning learners?
2. The competent teacher can plan a lesson that includes questions from the six cognitive levels of Bloom's Taxonomy.	1. Reading 2, Sanders, pp. 155-173. 2. Write a brief lesson plan that you might carry out in a classroom. Include questions you might ask at each of Bloom's six cognitive levels.
3. The competent teacher demonstrates the ability to teach a lesson that includes a variety of questions and questioning techniques for different learners.	1. Reading 3, Carin and Sund, pp. 212-237. 2. Reading 4, Blosser, pp. 6-7. 3. Activity 2. 4. Activity 3.

Readings

1. Blosser, Patricia E. "How to Ask the Right Questions." Washington, D.C.: National Science Teachers Association, 1975, pp. 6-7.

2. Carin, Arthur A. and Sund, Robert B. *Creative Questioning and Sensitive Listening Techniques: A Self Concept Approach* 2nd ed. Charles E. Merrill Publishing Co., Columbus, Ohio, 1971, pp. 192-211, 212-237.

3. Sanders, Norris M. *Classroom Questions: What Kinds?* New York: Harper and Row, 1966, pp. 155-173.

Activity 1

1. During the next week please complete the analysis sheet below.

   If you are in a teaching or aiding situation, base your observations on interactions in that classroom. If you are in neither situation, base your observation on events in a lecture in one class you are currently attending.

   Analyze cognitive level of question: (make tally marks in box provided to indicate number of questions at each level).

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

NINE

PLANNING FOR QUESTIONING

Choosing a Level of Commitment

A TEACHER composes or selects questions for instruction and evaluation nearly every day. The most modest commitment to the taxonomy would lead him to keep the seven basic kinds of questions in mind while performing this normal function. However, some teachers prefer more deliberate planning. This begins with a consideration of the forms of thinking that are appropriate for the course and a decision to place new emphasis on certain kinds of questions. For example, the teacher with a special interest in the transfer of training might decide to experiment with the use of more application questions by selecting important definitions, generalizations, and skills, and plotting strategy for their use on

the application level. Another system is to plan special lessons to develop an important skill or concept. If the idea of "cause and effect" is selected as the focus for several lessons, students can learn to relate this functional idea to the subject matter of the course. Broad concepts such as geographical determinism, social class, or standard of living, can be developed into beautiful lessons introducing important ideas that are to be followed up by interpretation and application questions in subsequent units.

A variation in the use of the taxonomy is to compose a unit focusing on neglected categories of thinking. The decision to do this should be made well in advance of the schedule for instruction in order to give sufficient time for preparation. Several eighth-grade United States history teachers decided in January to compose such a unit on the Civil War to be taught in May. They jointly planned the procedures and then individually worked out special lessons that were made available to all.

The ultimate commitment to the taxonomy of questions is the long-range program of building an entire course with a conscious consideration of the thought processes of students. This is normally undertaken by teachers who have had earlier success with special lessons or units. A reasonable rule of thumb for an academic course is that a minimum of one-third of the time allotted to questioning in both instruction and evaluation should be devoted to levels above memory. Some units lend themselves to a greater proportion of questions above this level, but it is difficult to justify a smaller proportion in any unit. The reason that time, rather than the number of questions, is used as the unit of measure is that questions in the upper categories often take longer to answer, so that ten memory questions may fill the same amount of time as one or two on a higher level.

In applying the ideas in this book a teacher should not expect questions of high quality to flow as water from a fountain. Good questions are difficult to compose. Sometimes a carefully formulated series of questions does not bring the expected responses from the pupils. In this case the teacher studies the questions to

From CLASSROOM QUESTIONS: WHAT KINDS? by Norris M. Sanders. Copyright © 1966 by Norris M. Sanders. Used by permission of Harper & Row, Publishers, Inc.

determine whether they are too difficult, improperly constructed, or if additional instruction should have been offered to prepare the students for the questions. He discards questions that cannot be repaired and saves the good ones. This means that each year the teacher starts with a larger stock of questions. The more experience he has in composing and using questions, the easier the process becomes.

Suggestions for Composing Questions

Before a teacher writes a unit, a lesson, or even a single question, he should steep himself in the subject, with his mind attuned to possible intellectual experiences for his students. In teaching on the memory level, a teacher need not know much more subject matter than is found in the students' textbooks. With higher categories of thinking, this is not true. The teacher must have a deep mastery of his subject and read widely in his field to keep abreast of new knowledge and interpretations. A teacher who knows only one example of the operation of a difficult principle can use it in instruction but then must revert to the memory level for evaluation. A teacher who knows two examples of the operation of a principle can use one in instruction and one on the interpretation or application level in evaluating student progress. A teacher who knows five examples of the operation of a principle can both instruct and evaluate student progress on the interpretation or application level. This teacher may find one of the five examples is best for slow learners and another for the gifted. The point is that the more knowledge a teacher has, the better chance he has to fashion learning on all levels appropriate for his students.

Another advantage of scholarship is that it gives a teacher more confidence in subjective evaluation. The teacher who avoids the synthesis and evaluation categories is often the one who has not had enough experience in his subject field to be able to give a convincing judgment of the quality of a student's work.

While studying a topic in preparation for instruction, the teacher should be on the lookout for the big working ideas—the generalizations, values, definitions, and skills that are important enough to deserve emphasis. These are the ideas that best lead to higher level questions. In considering them, it is wise to think of the process whereby the knowledge came into man's possession and then determine whether students could profitably retrace any of these steps if given the background.

Textbooks create a major problem for teachers concerned with composing good questions. Although many are attractive, accurate, readable, and understandable, they are also one of the biggest deterrents to thinking in the classroom, because the writers assume that students learn best by studying a polished product. The key function of the writer is to explain, and a good explanation is interesting, orderly, accurate, and complete. The vocabulary suits the level of the student and complex ideas are clarified by dissection, integration, example, and visual images. *Thus, the textbook is weak in that it offers little opportunity for any mental activity except remembering.* If there is an inference to be drawn, the author draws it, and if there is a significant relationship to be noted, the author points it out. There are no loose ends or incomplete analyses. The textbook is highly refined and as near perfection as a human mind is capable of making it —but the author does the thinking. The book never gives a clue that the author pondered (maybe even agonized) over hundreds of decisions. The result is that the creative process and the controversy of competing ideas are hidden from the students.

Suggested questions and activities at the end of the chapter vary in quality from book to book. Even in the best, the questions that go beyond memory are too often on peripheral matters or on controversial issues, which are safer to present in question form than to discuss in the text.

Students deserve the right to participate in the thinking. They deserve the right to reason with raw, undigested ideas. They are not ready to take over *all* the thinking functions of the writers,

but they can take over *part* of them. To accomplish this in a text, the author might stop his explanatory function at various points and, in effect, say to the student: "The next idea to be developed is one you can think out if I give you the raw material. This is an important idea and will be used later in the text. Give it your serious thought."

To put the emphasis on thinking into practice in a classroom, *a teacher must present subject matter from sources in addition to the text*. He must develop a sensitivity to ideas that are useful in instruction and evaluation. Pertinent ideas take such forms as these:

1. A contradiction to information offered in the text
2. A different interpretation or evaluation than offered in the text
3. Additional evidence to support a point made in the text
4. A different line of reasoning to arrive at a conclusion made in the text
5. A new example of the use of a generalization, value, definition, or skill developed in the text
6. More recent or accurate information on a topic presented in the text

Good thought-provoking questions almost jump out of these kinds of ideas. For example, if a teacher finds "a different line of reasoning to arrive at a conclusion made in the text," he can use the following approach: After giving students the new line of reasoning, but not the conclusion, he asks: "What conclusion follows from these ideas? What form of thinking was used to reach this conclusion? By what other line of reasoning can the same conclusion be reached? Which set of arguments best supports the conclusion? Is there any other approach to establishing the same conclusion?"

The information from sources other than the textbook can be offered to students in a number of ways. It can be presented orally or printed in mimeographed form. If possible, it should be directly quoted; but, if the vocabulary is inappropriate, the

teacher may paraphrase the ideas. New duplicating equipment enables one to make a ditto master directly from a printed page, so that in a few minutes a teacher (or secretary) can ditto copies of an article for every member of a class. Pictures, graphs, and statistics can be transmitted to students by making slides or transparencies for an overhead projector. This problem of getting information to students is mechanical but must not be ignored, because the whole process of questioning depends on the proper flow of ideas into the classroom.

Paperback books offer opportunities for bringing provocative ideas to the students. The large number of titles and the low cost mean that a school system can afford supplementary books on many units. When the teacher finds a paperback that raises possibilities for good thinking, he can order enough copies for reference reading in the school library and then plan for the kind of questions that will fruitfully follow. The school system that encourages teaching on this level should provide teachers with materials and opportunities for study and thinking.

A vital point to remember in planning questions is that almost any important concept can be taught in several ways that will lead the students to different levels of thinking.[1] The teacher's problem is to select the procedure that is most appropriate. For example, suppose an eleventh-grade American history teacher wishes to teach the concept that wages of city working men were on the average increasing faster between 1865 and 1900 than were prices of consumer goods, and this relationship, plus the increasing production of consumer goods and the low level of taxes, led to a modest improvement in the standard of living of the city workers. Three variations of strategy of instruction are suggested below:

1. The teacher explains the relationships among wages, prices, production, taxes, and standard of living. He then asks the stu-

[1] One illustration of this is the three approaches to instruction of the concept of "conflict of interest" which are offered in the questions at the end of Chapter One.

dents to recite the same information in class and later to write it on an essay or objective test.

2. The teacher presents statistical or graphic data on wages, prices, production, and taxes of the period from 1860 to 1900 and asks students to draw generalizations about the trends in each and to speculate on what was happening to the workers' standard of living.[2]

3. The teacher presents one of many statements describing the view that industrial robber barons of the 1865–1900 period exploited the city workers. The statistical evidence on wages, prices, production, and taxes could then be offered with the problem of determining whether or not this data substantiated the interpretation.

There are many more variations for the instruction of this one lesson. The teacher must choose the one he feels best suits the situation. To make this decision, he considers such things as the ability and motivation of the students, the time available, and the objectives of the course. For example, if course objectives call for emphasis on recent United States history, then the first approach is best in speeding the progress through the post-Civil War unit. If course objectives stress concentration on economic concepts or on skill in using statistical data, then the second or third approach seems best. If objectives stress the need for students to understand that historians interpret history and often disagree, then the last approach should be chosen.

In constructing questions in the higher categories, teachers should remember that there are likely to be several points in the thinking in which a student might make an error. A student could fail to answer an application question properly because of inability to remember necessary information or inability to translate the problem into a familiar context. Sometimes a teacher may wish to de-emphasize the memory aspects of a problem, so that

[2] This information is available from the following source: U. S. Department of Commerce, *Historical Statistics of the United States* (Washington, D.C.: U.S. Government Printing Office, 1960).

he knows a mistake reflects a breakdown in thinking on a higher level. This procedure is easily accomplished by providing all necessary information in the problem or by giving an "open-book" and "open-notes" test. For example, a unit in a Problems of Democracy course dealt with taxation and included an exercise on filling out federal income-tax forms. An obvious question for instruction and evaluation was to ask students to make out forms for mythical individuals. In composing the examination, the question arose as to whether students should be allowed to use the instruction booklet available to taxpayers to check on processes, kinds of deductions, etc. The answer—that students should be able to use all these materials because memorizing this information is not necessary, even for taxpayers—seemed obvious. This de-emphasis on memory should not carry to all application questions, because in many situations in life the use of skills in solving problems is dependent on the ability to remember necessary information.

The last suggestion in this section deals with a differentiation made between questions for instruction and those for evaluation leading to grading. In the memory category, the same questions serve both functions. With questions above the memory level, a complication arises in that the second time a question is asked, it can be answered by memory. An important rule in framing questions is that questions designed for grading should reflect the same kind of thinking used in instruction. It is wrong to ask a variety of levels of questions in instruction but revert to the memory category in evaluation. It is equally wrong to conduct instruction on the memory level in order to save higher level questions for an examination. The best way to avoid these errors is to compose examination questions and instructional questions at the same time and make a determined effort to keep them parallel.

The preceding suggestions for composing questions are summarized in the following points:

1. The greater depth a teacher has in a topic, the more poten-

tial he has for writing a variety of good questions. When preparing a lesson or a unit, a teacher should look for the kinds of ideas that are important and susceptible to use in thinking.

2. Textbooks help a teacher present an orderly sequence of subject matter but are written in a manner that encourages only the use of memory. Higher level questions often require the withholding of conclusions drawn in the text until the students have had an opportunity to do some thinking. Questions in the higher categories frequently require sources of information in addition to the text.

3. Almost any idea or skill can be taught in several ways featuring different kinds of thinking. The teacher should be aware of all possibilities and choose the most appropriate according to his objectives.

4. Questions classified in the higher categories can be missed by students on lower intellectual levels. For example, an application question may be missed because of inability to remember, translate, or interpret information. Teachers should bear this in mind when ascertaining the causes of errors in students' solutions.

5. Questions used to evaluate student progress should call for the same kinds of thinking as those used in instruction. It is not right to instruct on the level of higher categories of thinking and then evaluate only the ability to remember.

The Proper Format for Short-Answer and Discussion Questions

The format of a question is a vital consideration, because a potentially good question in any category of thinking can be ruined by improper construction. The most common forms of short-answer questions are true-false, completion, matching, and multiple-choice. Short-answer questions are often called "objective," but this distinction requires a reservation. An objective question asks for one specific answer that can be recognized as

correct or incorrect by any person knowledgeable on the subject. It does not require an expression of individual feelings and opinions. A short-answer question should be objective, but the form of the question does not guarantee that there is only one correct answer. A faultily constructed short-answer question may allow for several interpretations because of ambiguity or because it asks for evaluation or synthesis without offering the opportunity to carry out the entire process. Nothing is more frustrating for a student than to be confronted with a question that can be answered in several ways but offers only the opportunity to choose one answer with no qualifications. One objective of this book is to encourage teachers to use more subjective questions but not in the objective format.

The advantages of short-answer questions are that they can be used to instruct and evaluate diverse kinds and amounts of subject matter and skills, and are easy to correct. Teachers like them because they offer a precise scale for grading that discourages quibbling. The disadvantages are that they take a long time to compose in volume and are easily subject to errors in construction. Following are suggestions for composing short-answer questions:

1. Do not write questions on trivial ideas.
2. Do not use vague language, as in this example:
   "True or False: China is larger than the Soviet Union." The wording does not establish whether area or population is to be compared.
3. Make certain the question calls for a single, correct response.
4. In composing true-false questions:
   A. Remember the law of averages enters heavily into the score on these questions; so include enough items to establish reliability.
   B. Do not overuse superlatives as they usually indicate the answer is false.

C. Do not yield to the temptation of making true questions consistently longer than false questions:

5. In composing completion questions:
   A. Make certain that only one response is correct.
   B. Do not put in so many blanks that the question loses meaning.
   C. Do not permit the syntax of the statement or the length of the blank to give a hint as to the answer.
6. In composing matching questions:
   A. Do not include heterogeneous subjects that reveal answers by extraneous clues.
   B. Include more items in the response column, so that the last questions cannot be answered by elimination.
7. In composing multiple-choice questions:
   A. Include at least four options, but do not use obviously phony ones.
   B. Use "None of the above" or "All of the above" as a final option when appropriate.
   C. Include enough questions to raise reliability.
   D. Keep all options grammatically consistent.[3]

Short-answer questions can lead to thinking in all categories except synthesis and evaluation. However, full exploration of all categories requires additional use of discussion questions.

A discussion question is one in which a student is called upon to present an oral or written answer of a sentence or more in his own words. Some discussion questions calling for only a sentence or two are quite objective in the sense that they ask for specific information that is easily judged right or wrong. Examples would be questions asking for a simple definition or identification. Longer, more involved discussion questions are always at least

[3] For excellent suggestions on the format of questions, see James Bradfield and H. Stewart Moredock, *Measurement and Evaluation in Education* (New York: Macmillan Co., 1957); N. M. Downie, *Fundamentals of Measurement* (New York: Oxford University Press, 1958).

somewhat subjective—even when stressing the memorization of information—because of the problem of determining the amount of substantiation and description necessary to answer the questions.

The advantages of discussion questions are that they are fairly easy to compose and can be used to lead students into every category of the taxonomy. They also require students to organize and express ideas in their own words.

The disadvantages of discussion questions lie in the difficulty of evaluating them fairly. Educational research offers ample evidence that evaluation of subjective answers is a precarious process. A group of teachers correcting the same essays assign a great range of grades. A teacher correcting the same set of papers twice, with an interval of time between, usually makes different evaluations the second time. The uneasy feeling in correcting essay answers, the difficulty of justifying evaluations to students, and the great amount of time required to correct them all conspire to force teachers to neglect or misuse them. This is unfortunate, as it denies students practice in important kinds of thinking. A better approach is to reduce some of the disadvantages and to learn to live with the others. Specific suggestions follow:

1. Do not use essay questions to evaluate knowledge that could be tested with objective questions. For the most part, purely memory questions should not be in essay form. Seldom need a test be wholly in essay form, because objective questions are appropriate for many categories. This allows the teacher opportunity to do a better job in correcting a smaller number of subjective answers.

2. Before correcting the responses to a subjective question, think out as many approaches as possible. Decide on elements that appear to be essential in the various approaches. On some subjective questions, the answers are not dependent so much on the evaluation the student makes as on how well he supports his position.

3. Write comments and corrections on essay responses, be-

cause they are more revealing than a single grade. This is a time-consuming task and accentuates the need to keep the volume of reading within reasonable limits. One essay answer carefully corrected is worth two or three read in a cursory manner and assigned a grade with no explanation.

4. Make a point not to know whose paper is being read when correcting. It is too easy to get a stereotyped evaluation in mind for each student and unconsciously give the accustomed grade. Anonymity can easily be attained by having the name folded under a corner of the paper or written in an inconspicuous place.

5. Compose a guide for answering essay questions and go over it with students at the beginning of the year. Here is an example:

A. Survey the entire test quickly, noting the directions and estimating the importance and difficulty of each question.

B. Apportion the time available among the questions so that you will be able to answer adequately all required questions during the period. Allow more time for important or difficult questions. Plan to use all of the time available. Allow time at the end of the period for proofreading. Keep to your plan for the division of time.

C. Analyze each question carefully. Decide what is called for and what is *not* called for in your answer. The key nouns in the question will suggest the topic and subtopics for your essay. Verbs (compare, contrast, explain, discuss, define, describe, summarize, etc.) will tell you how to approach the topic. Phrases such as "before 1917" or "in the U.S.S.R." suggest limitations of the topic.

D. Organize each answer before you begin to write. Decide what important ideas are required according to your anlysis of the question. Jot down notes on the important ideas and organize them in a pattern. (The question itself will often suggest an organization for the answer.) Outline the pattern of ideas and add specific points under each. Good organization shortens writing time and makes the answer more clear.

E. Write each answer, following your outline and remembering the analysis of the question. Use proper form, grammar, and punctuation. Avoid repetition and unnecessary phrases. Avoid long introductions and conclusions.

F. Additional hints: Define key terms. Use technical terms and new vocabulary you have learned. Be as specific as possible. Distinguish between theory and fact. Cite authority whenever you can. Identify opinion. Use your reasoning power as well as your memory. Do not hesitate to be original in approach and interpretation.

G. A good answer to an essay question will (1) show understanding of the question and all its implications, (2) show adequate knowledge of fact and theory related to the question, (3) exclude irrelevant material, (4) be well organized with emphasis placed upon more important ideas, (5) demonstrate ability to write clearly, (6) contain valid reasoning, and (7) include originality when appropriate to the question.

Another opportunity to give students practice in answering both short-answer and discussion questions is in classroom recitation. A good oral discussion question is subject to several avenues of attack by individuals who have differing backgrounds and temperaments. In participating in an oral discussion, students exhibit most of the same kinds of thinking necessary in writing the answer to an essay question. The educational value of classroom recitation can be augmented by evaluating the contributions of the members of the class. One system involving some bookkeeping but that has proven to work well is to have the teacher evaluate student participation during the course of the recitation. He has a seating chart before him and records credit fo. every student response according to a simple system, such as this:

1. Adequate answer to a simple factual memory question: one point

2. Adequate answer to a more complicated question: two or three points
3. Adequate answer to a simple translation or interpretation question: three or four points
4. Adequate answer to an application, analysis, synthesis or evaluation question: five to ten points
5. Student asks a pertinent question: four or five points

The amount of credit a student attains within each range is dependent upon the difficulty of the question and the quality of the response. With practice, a teacher can use this system without slowing down the flow of questions. The students are told about the system and know their recitation will account for one-fourth of their grades. This has a motivational influence on oral work and offers a way to present more subjective questions to the class in a manner that counts in the grade. The teacher is also able to present a mixture of objective and subjective questions, of easy and difficult questions, to the appropriate students.

Mistakes to Avoid

As with any idea in education, a special concern for questions poses certain dangers. Teachers who strive for higher level questions may lose interest in the bread-and-butter memory question. They become so intrigued with sending students through intellectual labyrinths that they neglect fundamental knowledge. They may tend to cater to the capacities of superior students. Simple questions designed for slow students are just as necessary as complex ones in all categories. Subjective questions are important and have a challenge of their own but should be mixed with a liberal number of objective ones. There is satisfaction in giving the one right answer to an objective question and being told the response is correct.

The teacher must be careful to maintain continuity in instruc-

tion and to make certain that students see the logical organization of the instruction. One advantage of following a textbook is that, at any point in the course, the student can ascertain what has been covered and where the instruction is heading. The approach to instruction advocated in these pages urges teachers not to lean too heavily on the text; to present more information than is included in the book; to present other points of view; and to avoid using only the text on some topics in order to control the sequence of ideas to students. This places an extra responsibility on teachers to make certain that the instruction does not appear disjointed. Students should be required to save their notes and exercises worked out in class for review purposes. A written outline of the sequence of topics may be necessary for students to envision the direction and progress of the unit.

It takes longer for students to think their way through a unit than it does for them to memorize the thinking of others. This intensifies the difficulty of finding time to cover the significant topics in the course of the year. Even if time were not a factor, it would be unwise to have students try to figure out everything. In any unit, the teacher must determine the most lucrative areas for higher-category questions and judge the amount of time that can reasonably be devoted to them. Any substantial switch from memory to higher categories in a course requires some reduction in the amount of subject matter that can be considered. This can be justified only because it makes room for an increase in the practice of valuable intellectual skills.

The main caution to teachers who are undertaking to apply the taxonomy of questions is to keep the enterprise in proper perspective. A variety of questions at all costs is an untenable approach. Intellectual gymnastics do not strengthen the brain; but clearly defined intellectual skills applied to significant subject matter do prepare students for similar problems in life. The following selection illustrates the final point in this chapter that *good* questions can be ludicrous when applied to insignificant subject matter:

"This Little Pig went to market."

Why? Did he go to buy or to be bought? Is he a free agent? If to buy, what and for whom? Is he an informed buyer, the sort who would study the Buyers' Index and Consumers' Guide? If, and it is altogether possible, if he is to be sold, what price will he bring? What will be the effect on the market price of the recent attempts to control agricultural surplus? And, in our ever-widening circle of relationships, is there a reasonable or an exorbitant profit for the farmer?

"This Little Pig stayed home."

Once again, why? Why did he stay home? Was he perhaps antisocial? What was there in his background that caused him to stay home? What was his home like? What did he do there? He may have been a truant. What can we do to make our schools attractive to the potential truant? Is it good for us to stay home sometimes?

"This Little Pig had roast beef."

Would you consider roast beef proper food for a pig? Which is better, nutritionally speaking, rare or well-done meat?

"This Little Pig had none."

Why not? Did he eat something else? What would you suggest as a well-balanced diet for a pig? What bad psychological effects are likely to result from the juxtaposition of plenty and scarcity? One authority suggests that this little pig was suffering from some slight indisposition. Another suggests that he was being punished. Do you concur with either of these theories? Or was he on one of those liquid diets?

"This Little Pig cried 'Wee, Wee, Wee' all the way home."

Where had the little pig been? Why did he cry? What does this tell us about the pig's personality and character development? At what age do pigs change from "wee" to "oink"?

Let us now invite the children to participate in certain worthwhile activities which will provide experiential enrichment, accommodate individual differences, and permit the less literary and less articulate child to share in a rich experience.

1. Arrange a bulletin board on the theme, "Pigs in Literature." This can entail some research and should include of course, "Dissertation on Roast Pig," "Pigs Is Pigs," etc.
2. Build a home where a pig would like to stay. What size and shape would you make it? What materials and colors are most suitable?
3. Stay home yourself and see how you like it.
4. Prepare a scientific diet for a pig. Write to the U.S. Department of Agriculture, Washington 16, D.C., for the most recent information on the subject. Give careful attention to calorie intake and the proper balance of protein, carbohydrates, and fats. Consider particularly the cholesterol level of the diet.
5. Dramatize "This Little Pig." This poem can be adapted to the "theatre-in-the-round" technique.
6. Consult the visual-aids catalogues published by the visual-aids department of your school and show a film on pork production. Especially recommended is the U.S. Department of Agriculture film strip #208, "Pork Production in the United States, 1959."
7. Try fasting when others are eating to learn how that little pig felt. List the advantages of fasting.
8. Get a litter of five pigs and raise them so that they will be happy, healthy, and well adjusted. Keep a day-by-day account of their development, noting particularly their stability of personality.[4]

DISCUSSION QUESTIONS ON CHAPTER NINE

These questions differ from those in previous chapters. Questions 1 and 2 are recommended as worthwhile exercises to perform. The rest of the questions present problems on which the reader probably will have initial reactions but on which final answers will have to await further experimentation.

1. Select a generalization, definition, value, or skill and describe several ways it might be taught in which students would engage in different kinds of thinking.

[4] Bernice Black, "For The Teacher Only," in Martin Levin's "Phoenix Nest," *Saturday Review*, August 11, 1962, p. 7.

2. Measure the quality of the format of the questions that you have used on a test against the standards set in this chapter.
3. Invent the format of a textbook that would give students a greater intellectual responsibility than simply being consumers of an author's ideas.
4. Is there value in having students learn the meaning of some or all the categories of thinking? Tell why.
5. What factors make a question easy or difficult to answer? Is there a method, other than trial and error, for determining the level of complexity of ideas and skills that students of a certain mental age can master?
6. The charge has been made that teachers fail to keep up with new developments in their subject fields. To the extent that this may be true, what could be done to give teachers more time and motivation to study?
7. How might the taxonomy of questions be used in an in-service training program?
8. How might imaginative questions be included in curriculum bulletins in ways that would be helpful to teachers?

Activity 2

Complete the following analysis sheet based on your behaviors in delivering a lesson or the behaviors of a teacher or professor you have observed. (You will find two copies of the analysis sheet: The one below for your use prior to class, and one for your use during group activities when this module is delivered by your professor.

1. In a _____ minute interval, I asked _____ questions.

2. These included:

   _____ Managerial Questions

   _____ Rhetorical Questions

   _____ Closed Questions

   _____ Open Questions

   Behaviors to be encouraged

3. I asked a student to expand a response _____ times.

4. I asked students to react to each other _____ times.

   Behaviors to be discouraged

5. I repeated my own question or rephrased it _____ times.

6. I repeated a student's response _____ times.

7. I answered my own question _____ times.

8. I did not pause at all or only momentarily _____ times.

9. I made unnecessary comments or remarks _____ times.

1. In a _____ minute interval, I asked _____ questions.

2. These included:

_____ Managerial Questions

_____ Rhetorical Questions

_____ Closed Questions

_____ Open Questions

Behaviors to be encouraged

3. I asked a student to expand a response _____ times.

4. I asked students to react to each other _____ times.

Behaviors to be discouraged

5. I repeated my own question or rephrased it _____ times.

6. I repeated a student's response _____ times.

7. I answered my own question _____ times.

8. I did not pause at all or only momentarily _____ times.

9. I made unnecessary comments or remarks _____ times.

Activity 3

Write a brief paragraph explaining how uses and levels of questions might be varied to meet the needs of a mildly handicapped student in a regular education situation typical of your area.

PLANNING FREQUENT SUCCESS EXPERIENCES FOR THE LEARNER

by
George Duerksen and Jeannie Kleinhammer
University of Kansas

Research indicates that learners tend to develop positive attitudes and learn more efficiently when they experience frequent success in the learning process. This is particularly important for those who have special educational needs. All too often, such learners are presented the same material in the same way as that used for those who do not experience difficulty in classroom learning situations. For those learners, special attention needs to be given to planning for frequent successful learning.

This module helps students integrate and apply their professional skill and knowledge to the planning and delivery of instruction that ensures frequent success for learners. If used during the student teaching program, this module requires no new information for the preservice teacher. Instead, it requires the organization and use of knowledge and skills acquired through other modules and/or methods classes.

Student Outcomes

Upon completion of this module, the student will be able to plan, deliver, and assess a lesson designed to provide frequent success in learning experiences for exceptional learners.

Instructor Information

Prerequisites:

Before beginning this module, students should be able to describe the characteristics of the developmental patterns of normal and atypical learners; to assess and plan individualized instructional programs for all curriculum areas; and to establish acceptable standards of behavior for and with exceptional learners. In addition, the student should be able to give clear directions, use set induction, cueing and closure, and apply a variety of motivational techniques.

Organization:

This module is designed to be used in the student teaching experience; however, it can, with modification, be used in a methods class. It should be noted, however, that if this module is used in a methods class, the class should be one that comes late in the professional education of the student and has access to a practicum site. While it is possible to have the students themselves complete the activities in this module through role-playing, this is not recommended.

There are 22 enabling activities for this module. These activities provide a framework and a guide for the student to integrate knowledge and for exceptional learners.

If the student is assigned to a classroom in which there are no exceptional learners, normal learners may be used.

Content Overview:

This module requires that no new content be mastered by the student. It does require the application of the following knowledge and/or skills:

1. Knowledge of the exceptional learners to be worked with.
2. Knowledge of assessment procedures.
3. Ability to plan instuctional objectives.
4. Knowledge of the content of a curriculum area(s).
5. Knowledge of a variety of appropriate methods that fit the curriculum area(s).
6. Ability to evaluate a lesson.

Suggestions for Teaching:

The instructor will need to provide an instructional site for the student, preferably one the student is using in student teaching. The instructor will also need to consult with the cooperating teacher, since s/he plays an important role in this module. Without the assistance of the cooperating teacher, the student's success in completing the module may be limited. Even with such assistance, videotaping of the lesson may be useful.

Before assigning this module to the student, the instructor may find it helpful to review the prerequisites with the student, since these are essential to the module. It will also be helpful to work with the student and cooperating teacher in the identification of the learners, the subject to be taught, and the techniques and assessment procedures to be used.

Evaluation:

There is no formal evaluation for this module. Since the module requires the application of knowledge and skills, evaluation is a component of each activity. It is suggested that some criteria be established by the instructor, cooperating teacher, and student for evaluating the various components dealt with. If more formal evaluation is desired, the worksheets used by the student can be used.

Resources:

1. Textbooks from methods classes, content classes, educational psychology, educational measurements.
2. Curriculum guides.
3. Mainstreaming modules.
4. Consultative assistance from cooperating teacher, instructor, peers, school personnel.

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Prospectus

Research indicates that learners tend to develop positive attitudes and learn more efficiently when they experience frequent success in the learning process. This is particularly important for those who have special educational needs. All too often, such learners are presented the same material in the same way as that used for those who do not experience difficulty in classroom learning situations. For those learners, special attention needs to be given to planning for frequent successful learning.

This module will help you integrate and apply your professional skill and knowledge to the planning and delivery of instruction that ensures frequent success for learners. No new information is required; instead, the organization and use of knowledge and skills you already have are used.

CAUTIONS: The idea of frequent success seems simple, but it is not. The teacher who wants to assure learner success needs to be certain that the learner has a goal, desires it, and reaches it. A few cautions may be in order.

1. Learners may not have the same goals or objectives as the teacher.
2. Learners may accept objectives, but not have much desire to reach them.
3. Learners may not be aware when they have reached desired goals.
4. Long-term goals do not provide for *frequent* success.

Part I: Planning the Lesson

Student Objectives	Enabling Activities
1. The student will choose a lesson to be delivered in the normal student-teaching context.	1. Consult cooperating teacher. 2. Consult curriculum guide. 3. Handout 1, Student Worksheet.
2. The student will choose an appropriate number of success experiences to be built into that lesson, justifying the number chosen on the basis of learner characteristics, lesson objectives and content, time allotted for instruction, and any other considerations which may be appropriate.	1. Review knowledge of learner. 2. Gather specific information about students in class. 3. Review knowledge of methods. 4. Consult cooperating teacher.

Student Objectives (cont.)	Enabling Activities (cont.)
3. From the objectives of the chosen lesson, and in light of individual learner characteristics, the student will derive and list sufficient appropriate cognitive or other objectives to provide the desired number of success experiences.	1. Review knowledge of developing instructional objectives. 2. Review knowledge of methods. 3. Consult cooperaing teacher.
4. For each objective on the list, the student will identify and describe in writing three alternative individual or group approaches designed to get individual learners to desire the objective, and will obtain or develop the materials necessary for these approaches.	1. Review knowledge on motivation and attitude development. 2. Consult peers. 3. Review knowledge of methods.
5. For each objective on the list, the student will identify and describe in writing three appropriate group or individual activities designed to assure that learners will reach the desired objective and obtain or develop the materials necessary for these activities.	1. Review knowledge of methods. 2. Consult as appropriate.
6. For each objective on the list, the student will identify and describe in writing at least one learner activity and teacher activity designed to ensure that learners will recognize that they have reached the desired objective; and will obtain or develop the materials necessary to carry out these activities.	1. Review knowledge of methods. 2. Consult as appropriate.

Part II: Delivering the Lesson

Student Objectives	
1. The student will confer with the cooperating teacher to select a time to deliver the lesson as planned in section I.	
2. The student will identify and list which exceptional learners in the class seem most likely to be served best by which of the alternative approaches.	1. Evaluate learners. 2. Consult cooperating teacher.
3. The student will deliver the lesson, using the alternatives as planned.	

Part III: Assessing the Lesson

Student Objectives	Enabling Activities
1. The student will plan a scheme for measuring the results of applying each step listed under "Planning the Lesson," and describe this scheme in writing.	1. Review knowledge of educational measurement. 2. Consult peers. 3. Consult cooperating teacher. 4. Consult media center for videotaping if appropriate.
2. The student will arrange for appropriate data, as specified in the assessment scheme, to be gathered during the delivery of the lesson.	
3. The student will analyze the data according to the assessment scheme, and prepare a written report of the results.	
4. The student will provide copies of the report to the cooperating teacher and the supervisor and discuss the results of the assessment with those individuals. The discussion will focus on the effectiveness of the alternatives as planned and applied and on suggestions for modifications based on the results.	

Handout 1

STUDENT WORKSHEET

1. Briefly describe one lesson which you might carry out in student teaching for one learn

2. List several motivational techniques which migh be appropriate for your target learner.

   a.
   b.
   c.
   d.
   e. e.

3. Identify the following:

A. Activities to gain learners interest in achieving each objective	B. Behavioral objectives for lesso	C. Group or individual techniques to ensure success experiences for activities	D. Activities to ensure that learners recognize that they have reached each objective
1.	1.	1.	1.
2.	2.	2.	2.
3.	3.	3.	3.
4.	4.	4.	4.
5.	5.	5.	5.
6.	6.	6.	6.
7.	7.	7.	7.
8.	8.	8.	8.
9.	9.	9.	9.
10.	10.	10.	10.

4. Describe the strategy you would use for evaluating learner success experiences.

5. Be prepared to discuss your lesson, learner, and planned success experiences in class.

64

5. Learners in class:	Type of success experience most appropriate:
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.
11.	11.
12.	12.
13.	13.
14.	14.
15.	15.
16.	16.
17.	17.
18.	18.
19.	19.

65

MOTIVATIONAL TECHNIQUES

by
Joel Colbert
University of Kansas

The subjects taught in school, and the topics in these subjects, have different appeals to different learners. In any classroom, the range of interest in a given topic or subject is likely to be very wide, yet the teacher is expected to interest *all* learners in *all* topics taught in school. Such a task is almost overwhelming, and the teacher finds it necessary to *create* interest. There are many techniques available to motivate students to learn a topic. The purpose of this module is to present to preservice teachers a variety of such techniques. Students will also have a chance to practice the techniques of their choice.

Student Outcomes

Upon completion of this module, students will be able to use motivational techniques appropriate for the normal and atypical learner.

Instructor Information

Prerequisites:

Before beginning this module, students should be able to describe the characteristics of the developmental patterns of normal and atypical learners, develop individualized instructional materials in various curriculum areas based on appropriate theories, provide appropriate verbal and nonverbal rewards for academic and nonacademic behaviors, use set induction, cueing and closure techniques, give clear directions, use a variety of verbal and nonverbal strategies for communicating with learners, and differentially reinforce appropriate classroom behaviors.

Organization:

There are seven enabling activities which include readings on motivation and the atypical learner. A film pertaining to motivation, microteaching session (videotaped), plus class discussions are the techniques used to meet objectives in this module. The microteaching session is the final activity, and integrates the readings, class discussions and film.

Content Overview:

This module relates motivational techniques to the exceptional learner by covering the following content:

1. Motivational techniques.

2. Factors that influence the selection of appropriate motivational techniques: methods, curriculum organization, materials, innovative practices.

3. Motivation through reinforcement of behavior.

4. Motivation and punishment.

Suggestions for teaching:

The teaching time for this module is approximately three hours. Approximately 20 minutes of the first class hour will be devoted to viewing a film specific to the objectives. The remainder of the hour will involve class discussion of the film and readings. The second class session will require use of videotape equipment. Small group sessions should be scheduled to complete videotaped microteaching situations and feedback on microteaching. The final class session will involve student work in dyads. This activity might be completed outside of the classroom; however, discussion, instructor feedback, and evaluation of the dyadic experience will be necessary. More specific suggestions follow:

1. Students should be required to complete all assignments prior to the first session.

2. The film may be ordered from: Office of Instructional Resources, School of Education, University of Kansas, Lawrence, Kansas 66045.

3. The final activity, the demonstration of three motivational techniques, requires the students to integrate the information covered in the readings, discussions, and the film with the microteaching and classroom experiences.

Evaluation:

No formal evaluation is included in the module. The final activity can serve as a type of evaluation; if other types are needed, the instructor can prepare them from the readings and film.

MOTIVATIONAL TECHNIQUES

by
Joel Colbert
University of Kansas

Prospectus

The topics covered in the various subjects taught in schools have different appeals to different learners. To some extent, the age, background, and school achievement help us to predict interest level. In any classroom, however, the range of interest in a given topic or subject is likely to be very wide, yet, the teacher is expected to interest all learners. This is a big task, and the teacher often finds it necessary to *create* interest. There are many techniques available to motivate learners to learn, including multisensory techniques, increased student involvement, individualized instruction, and others. This module will help you identify and use a variety of motivational techniques, including such skills as set induction, cueing, and reinforcement that you have mastered in other modules.

Student Objectives	Enabling Activities
1. The student will be able to describe at least five techniques for motivating students.	1. Reading 1, Russell, pp. 51-92. 2. Films: "Creating Student Involvement-Stimulus Variation" and "Completeness of Communication." (Available from Office of Instructional Resources, University of Kansas.) 3. Class Discussion: On the role of various motivational techniques in the individualized classroom with typical and exceptional learners.
2. The student will be able to describe the role of various motivational techniques in the individualized classroom with typical and exceptional learners.	1. Reading 2, Haring and Bateman, pp. 256-271. 2. Reading 3, Dunn, pp. 282-284. 3. Continue class discussion on motivational techniques in the individualized classroom with typical and exceptional learners.
3. The student will demonstrate a motivational technique (not previously attempted) in a microteaching situation.	1. Students will sign up for a videotaping session in which a motivational technique, not previously attempted, will be demonstrated before a small group. The lesson should last approximately 5-10 minutes. Feedback should be given immediately following and re-teaching the same lesson following feedback. Use Handout 1 for outlining the lesson and for receiving feedback.

Student Objectives (cont.)	Enabling Activities (cont.)
4. The student will demonstrate at least 3 motivational techniques (not previously attempted) in a classroom situation.	1. Working with a partner, demonstrate at least three motivational techniques. Use the feedback sheet (same as one used in the previous activity) for outlining the lesson and receiving feedback from your partner.

Readings:

1. Russell, I.L. *Motivation*. Dubuque, Iowa: Wm. C. Brown Co., 1971, pp. 51-92.

2. Haring, N.G. and Bateman, B. *Teaching the Disabled Child*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1977, pp. 255-257, 269.

3. Graubard, P.S."Children with Behavioral Disabilities."In L.M. Dunn (ed.), *Exceptional Children in the Schools*. New York: Holt, Rinehart, and Winston, 1973, pp. 282,284.

Handout

Motivational Techniques
Feedback Sheet

Directions: Fill out the upper part of this sheet prior to teaching the lesson. Give the completed sheet to your partner or microteaching supervisor, who will then fill out the bottom part and return it to you. Use the back of this sheet if more space is needed. Turn in the completed sheet to your instructor.

Name _____

Topic _____

Objectives:

Description of Motivational Techniques:

Observer Feedback

Name _____ (partner/microteaching supervisor circle one)

1. Did the teacher reach his/her expectations as stated above? Explain.

2. Did the motivational technique appear to generate student interest? Explain.

3. How might the motivational technique be done differently to generate more student interest?

Students, Schools, and Motivation

In preceding chapters, we have examined major concepts and theories of human motivation. Now our objective is to bring what we believe to be true about student motives into the school. This task is not an easy one. At the outset, it is necessary to limit our discussion to academic behavior and only incidentally to consider the multitude of other motivations that account for student actions and reactions. Then we must face the fact that, in any group, varieties of motivational forces are at work shaping academic learning. Next we must realize that to understand and deal with motivation requires the patience to look deeply into experiences and to look carefully at the contemporary environment. Observation is the only tool we can employ to get the information we need. Skilled observation and enlightened inferences drawn from what we observe can provide us with more than ordinary insight.

Preschool Conditioners and Early School Life

By the time a child reaches school where we can begin to watch and to influence his reactions, his behavior already suggests a complex psychobiological structure. His basic patterns of reaction to himself and his surroundings are rather firmly established. Nevertheless, if we are to attach meanings to our school observations, we must have an appreciation of the effect that home life has produced in the personality of the child.

Attempting to summarize the influences of the home, or even to contemplate them, is bewildering. Limiting the field to a few admittedly oversimplified areas of concern is the only way we can presume to deal with it here. Perhaps if we confine ourselves to these questions, we will have enough information to make our school observations meaningful:

1. What is the child's status in the home? If he occupies a place of respect, concern, some autonomy, and responsibility, his anticipation of school will likely be positive. If his status is insecure, we can expect him to have difficulty in his school relationships and his motives to direct him away from the main theme of learning.

2. What expectations have the parents held for the child in terms of new learnings? Perhaps they have recognized the child's successes and have helped him to become aware of them, also. This, along with gradually increased expectations in keeping with the child's successes and task difficulties, prepares the child for school learning. Any condition short of these may set the stage for the child to have motivational problems in school.

3. What kind of help has the child received in meeting standards held for him at home? If he has been aided by clues, alternatives, and suggestions, he has had opportunities to develop independence. If things have been done for him, and he has had no choices, it is probable that the result is dependency and difficulty in school.

4. What is the nature of the reward and punishment pattern to which the child has been exposed? If he has grown accustomed to finding some reward in the task itself and to rewarding himself when he satisfies his own expectations, he is well prepared for school learning. On the other hand, if he is in constant need of external rewards or punishments to circumscribe his behavior, school will be confusing.

5. Have his relationships with adults been wholesome and satisfying? If he sees the teacher and others as friendly helpers, he is well prepared to move successfully in his school relationships with them. But if he is too dependent upon or too fearful of adults, his learning behaviors will be adversely affected.

6. Has he learned to enjoy playing and interacting with other children? If so, he will be sufficiently at ease with them to react cooperatively and to learn in the group setting. If not, social interaction is likely to be a problem and a barrier to academic learning.

7. Has his emotional life been reasonably free from extended periods of fear, anger, and rejection? If it has, we can expect enough security and poise for the child to give his attention to academic matters. If life has been quite threatening, the child is most likely to be concerned about his own security and status, leaving little, if any, time and energy for other things.

8. Have his physical needs been cared for? If there have been adequate physical satisfactions, the child should be able to approach social and psychological learning. Hunger and neglect are obvious handicaps in all aspects of the child's life.

9. Have his experiences included a variety of stimuli to which attention has been drawn and meanings attached? Perceptual awareness and curiosity are intensified by exposure and dulled by a lack of it.

From Russell, Ivan L., MOTIVATION, 1971, Dubuque, Iowa, William C. Brown Company Publishers.
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10. Has he been helped to understand what he has encountered in his physical and social environment? A desire for knowledge and understanding is increased by verbalization of ideas, questions, explorations, and answers. Confusion and apathy are the probable results of lack of understanding of events that the child encounters.

Adjusting to School

It is immediately evident that children come to school from a variety of backgrounds. Early experiences create in them a diversity of conditions that subsequently influence their lives in school. As adults who have found a home in the school environment, teachers have some difficulty in understanding the plight of children. Why do they not feel as comfortable as we do? At its very best, the school is restrictive enough to create for the child an unreal circumstance, one unlike any other in his life. This strange world is entered with anxiety—a condition typical of any explorer who steps into a new experience. Armed with a set of expectancies drawn from successes and failures of the past and built upon by hearsay, the child makes tentative tests of his surroundings. The behaviors he uses are those previously found to be effective. First, his attention is attracted to the many physical aspects of the area. Then over a period of time, all the movements, sights, sounds, and smells merge into a vague mass. They may be recalled one by one as new meanings are attached to them. Many children encounter the school as an overwhelmingly complex mass of stimuli which must be reacted to with some form of avoidance behavior. To avoid excessive threat, the child may withdraw and show apathy and passivity which last for some length of time. Others quickly select something to which they can react, thereby escaping from the discomfort of the circumstance. Unable to react to each and every stimulus and event in the school day, each child becomes selective. His selections are determined by his own motives and by his perceptions of the environment at the time. A few objects, persons, and events with the most relevance are responded to and recalled. Teachers expect that the significant and meaningful experience will be the one designed to teach the child something that will move him toward the school's objective. However, an inquiry into the highlights of each day would likely prove as disappointing for the teacher as it frequently does for the parent.

Out of the milieu of early school experiences, the child develops a "way of school life" which he is prone to continue for many years. If school turns out to be a place where success is encountered and pleasure is felt, it follows that positive expectancies are created and perpetuated. If, to the contrary, failure, embarrassment, and discomfort are the predominant themes, it is natural that negative expectancies arise. Whatever the child comes to expect, his own perceptions and behaviors tend to fulfill. In the school program or in his relations with

teachers, he may find cause to change his expectancies. On the other hand, there is the strong possibility that the child who expects difficulty somehow conveys this feeling to the teacher in nonverbal communication, and that the teacher reacts in ways which make the child's expectations become fact.

By the time children have been in school two or three years, teachers can observe a fairly consistent pattern in their school work. At this early stage, the patterns are relatively simple and consist of at least these five categories:

(1) works independently to achieve recognized goals;
(2) works to please the teacher and parents and to meet their expectations;
(3) works mainly to be affiliated with others and to do what they are doing;
(4) works under a self-inflicted threat of failure;
(5) works only when threatened or forced to it.

Later in the school program, other motives come into play, and the patterns become quite complex. We do not as yet have research to describe the motivational conditions of upper grade levels.

The School

To understand the problems of school motivation requires a careful look at the conditions in which teachers and students function. Schools, by their nature, impose limits within which teaching and learning are expected to occur. Physical and academic restrictions grow out of preset programs, books, bells, tests, equipment, and classrooms. State laws, administrative policies, and rules laid down by the faculty further limit the atmosphere. If we add to this the personalities of teachers, we have the forces, exclusive of student characteristics, that contribute to the effectiveness of teaching. The total effect can sharpen student motivation, or it can blunt it.

In most of its attributes, the school traditionally has been adjusted to what are defined as normative characteristics of various groups. Often, these norms are more idealistic than realistic. Since they develop over time, are derived from questionable information, and passed by word of mouth, the odds are negligible that they describe the students who are affected by them. Too often, the school is found to be unwilling or unable to bend itself to accommodate to the needs of special groups or of individual students. It is in the matter of motivation that these limitations become particularly troublesome. The student for whom the school has the most positive meaning brings along enough push and pull of one kind or another to sustain him through his daily encounters. His motives are those which keep him in tune with the central theme of the classroom, make him at least minimally responsive to the teacher's guidance, and keep him functioning constructively within a student group.

But many students have motivational characteristics that lead them into conflict with the routine of the school in one way or another. To make their school day a more positive influence would require unusual adaptations on the part of the school itself. It is not enough to expect of a public institution with a critical mission to perform that it serve only half of its population or just those who can adapt easily to its restrictions. Instead, every opportunity must be sought to make education meaningful and desired by everyone. To accomplish this, there must be a program more dynamic and flexible than any program in evidence today. This means that time, space, equipment, supplies, and personnel must be seen in a different light. Despite lip service to the contrary, the tangible elements have determined the program when they should be subordinate to it. Furthermore, the program, instead of being "the thing," must be built upon a set of attainable objectives that have real significance for students of today. It is true that schools are changing and that curriculum reconstruction and other advancements may bring education closer to its potential as a positive force for society.

Since midcentury, we have been in an era marked by rapid and fundamental changes in every aspect of our lives. No institution has been exempt from scrutiny, judgment, and challenge leveled at its role and purpose in the total influence upon the problems of our time. Schools have received an exceptional breadth and depth of concern from both the public and private sectors of society. Unaccustomed to external pressures for change, the institution of education has found itself without a strategy to guide its activity into purposeful and orderly priorities. Commenting on the conditions existing prior to the period when massive urges toward change began, Harold Full (1967) made the following statement:

> Either by its resistance to change or by the ignoring of it, the school seldom really solved or resolved its problems. When changes were made, they were additive by nature—the schools retained everything they were presently engaged in and added a few new ideas, usually in the form of new courses (p. 60).

Many changes have come about in the recent past and, no doubt, many more will occur in the near future. Have these innovations been only window dressing? Or do they really serve to make the school more relevant to the lives of its students?

No school could be more relevant than to bring about major consequences in the motivational aspects of students' lives. Let us examine several components of the school program in terms of motivation and effective teaching. In doing so, the contents of earlier chapters are important to remember because they will help us to keep our minds focused upon students and their motivational qualities. Arbitrary distinctions must be made between curriculum content, school programs,

and teacher behavior in the full knowledge that school is an integrated experience. It will help to understand and to emphasize each element as it pertains to motivation if it is considered somewhat independently. Topics to be included in our examination of the school program include: the objectives of the curriculum, content and method, and several innovative programs.

Objectives of the Curriculum

Taking stock of our position in public education, Goodlad (1967) notes the disparity between our awareness of individual differences and our treatment of students. Differences have been disregarded in favor of a set of facts and skills for everyone at prescribed times in their school lives. Teachers, like students, have been constrained by this action. Efforts and energies are absorbed by the task of trying to make a single content understandable and, at the same time, attractive to everyone. Each day, teachers look into the faces of students who they know are not really interested in what is happening to them. Caught without a clear set of purposes as guidelines by which the events of the classroom can be selected, many teachers are confused. In reaction, students become more apathetic or show other forms of avoidance behavior.

It is imperative that the real objectives we seek in education be made clear to teachers and to students. The search for a perfect curriculum seems to have ceased. In reality, no agreement has been reached, nor is it likely to be decided that a given set of experiences can serve the needs of everyone. A casual look at schools reveals that curricula vary extensively. Why, then, shouldn't the curriculum vary from child to child in the same classroom? The answer must be that it should if more will be accomplished by the student. But there must be some logic and purpose behind what teachers and students do in school. What we need and must have is a set of goals specific enough to be understandable and, at the same time, general enough to be applicable. It would improve matters if the goals were phrased in terms of what students are expected to do following a period of schooling.

A set of six behavioral objectives as the outcomes of education has been proposed by Goodlad (1967):

1. **The student will use self-appraisal.**
2. **The student will rely upon himself.**
3. **The student will show self-control.**
4. **The student will show proficiency in fundamental movement skills.**
5. **The student will evidence effective communication skills.**
6. **The student will use cognitive behaviors with facility.**

Goals like these, while they are too vague to be entirely satisfactory, give a teacher more direction than most sets of objectives do. Further-

more, the stage is set for student development to have a place in the focus of the curriculum.

There is a growing recognition that learning "to think critically" is perhaps the ultimate goal of contemporary education. In its search for objectives, the Educational Policies Commission of the National Education Association (1961) has arrived at a significant statement:

> The purpose which runs through and strengthens all other educational purposes—the common thread of education—is the development of the ability to think (p. 18).

This document goes on to make a point concerning the nature of a curriculum suited to this objective:

> No particular body of knowledge will of itself develop the ability to think clearly. The development of this ability depends instead on methods that encourage the transfer of learning from one context to another and the organization of things learned (p. 18).

Easy as it is to say it, development of the ability to think is a most complex undertaking. If the educational slate were wiped clean and we could begin anew, the problems would be fewer. Instead, an alteration of our course must begin in the contemporary scene. To offer an essay on the topic is not the intention here. It is our desire, however, to examine the contextual limitations that are placed upon student motivation. By their nature, many of the perplexing obstacles to a change of educational goal orientation involve serious hazards to motivation, also. A quick look at them can only help in the understanding of motivation in its school context.

1. Society, educators included, cannot as yet subscribe wholeheartedly to the objective of creating critical thinkers. Free as we like to believe ourselves to be, a thinking person is seen as a threat by those around him. As a motto, it is laudable, but as a "for real" goal, we are not ready to accept it.

2. Students and teachers have operationally defined the role of the student as one of passive, reactive recipient of knowledge. Whether the role can be altered for everyone, and how it can be done effectively, are questions needing answers.

3. As philosophers, scientists, artists, and technologists, we have only vague opinions and contradictory theories about thinking. Unable to define it, we are not sure what happens organically, psychologically, or socially when a person uses thought.

4. Relationships among knowledge, values, wishes, emotions, and motives as inputs for the thought process are not clear to us. And yet, if we elect to deal with thinking as a process, we cannot accept responsibility for knowledge and exclude all other inputs.

5. We know something about observable behavior, but in truth, we know little, if anything, about how the ability to think develops.

It is apparent that schools will not become "thought-centered" overnight, in view of these obstacles. It is a fact, however, that a definite movement is under way to increase the emphasis upon thinking in the school life of students. Teachers who subscribe to this doctrine should not apologize for the selection of a curriculum content suitable for individual learners. Neither should they shrink from the initiation of activities that involve students in problem-solving, decision-making, goal-selection, and other motivating pursuits.

Content and Method

We have noted in earlier chapters that there are many conditions in the learner that help to determine his behavior. We are at the point now of dealing with the role of content and instructional method as they relate to student motivation. Today more than ever before, there is a recognition that learning content, teaching method, and student motivation are intimately interwoven. In fact, the relationships are close enough to complicate any attempt to discuss and understand all of the facets. To simplify matters, let us first examine the lowest or first-order relationships that are easily shown in the following conditions:

1. Topics and subjects have varying levels of appeal. Age, sex, and social background of students help to predict the level of appeal or interest.

2. Instructional methods, quite apart from content, have qualities that capture the enthusiastic involvement of certain students and turn others off.

3. Subjects, topics, and skills accommodate to certain teaching methods better than to others.

Combining these simple conditions leads to the conclusions that:

1. Interesting topics taught in interesting ways produce maximum student motivation.

2. The appeal of a topic may be increased by teaching it with a technique known to have motivating potential with students.

3. Uninteresting topics presented in unappealing ways will attract few students.

Simple and obvious conditions of this nature, important as they are, require little or no discussion. Instead, we must concern ourselves with ways teachers can manipulate content and method to maximize student involvement and learning.

National curriculum study groups in science and mathematics have achieved improvement in making their subjects more attractive. While making substantive changes in content, they have accomplished another change that is equally noteworthy. They have built into their content an appealing methodology. Students have been given more time to handle and manipulate equipment and ideas. Following periods of manipulation, students observe and record the consequences of their actions. More recently, the trend toward similar change is occurring in the social studies. Real issues are being discussed in class, and motivation is elevated through student involvement. Unfortunately, the new curricula have been placed in the hands of teachers who have failed to appreciate the value of the discovery method, and its effect has often been lost.

Curiosity, exploration, and manipulation are the natural behaviors with which children are endowed to help them discover their world. Motivated by these action tendencies, children seek out the order and pattern of objects and events they encounter. It is easy to find agreement that we fail to capitalize on this, the most important positive motive children possess. And yet we continue in our tradition as though it made no difference. Does this mean that we deliberately seek to block curiosity? If so, there are several effective ways to go about it. Marx and Tombaugh (1967) list ten ways, and three of them pertain to the content of the curriculum:

1. Deprive students of sensorimotor and verbal stimulation.
2. Overemphasize purely rote learning of uninteresting material without adequate interpretation, explanation, or effort to arouse the child's interest.
3. Present material on a level which the child cannot understand (p. 212).

To their list, many other somewhat more subtle ways can be added:

1. Refrain from the use of novelty material since children tend to become enthralled in it.
2. Do not select subject matter that conflicts with what the student already thinks. Make sure that no elements within the subject content conflict with each other. Thus, we can be certain that it will be easily consumed and forgotten.
3. Select reading matter that contains characters and content with which the student cannot identify.
4. Allow no switching from one book to another, or from one topic to another, because this change will tend to dispel boredom.
5. Select content with few, if any, interesting pictures, diagrams, cartoons, and designs, because students will spend too much time looking at them and miss all the important knowledge.

6. Select books and reference materials that make every point perfectly clear with long, boring, detailed explanations. Then the student will find it unnecessary to think for himself. If he misses one of the points or goes off into a tangent of self-directed thinking, call his attention to what he is missing.
7. Make sure that the student understands clearly what he is to seek when he opens his book. Tell him what he will find, because this robs him of the surprise and, at the same time, convinces him that his teacher knows his stuff.
8. Select reading and study material that employs very bland language, a lot of formality, and many words that are outside the normal vocabulary of the student.
9. Never allow the student to find and use materials of his own selection. The really important facts may not be there, or if they are, they are likely to be phrased in such a way as to confuse him when he takes the test.
10. Beware of the student who gets hung up or shows too much interest in one topic of study. His personal pursuit of greater depth in a particular topic will prevent him from advancing along the broad academic front that the curriculum requires.

There are many other ways to stifle curiosity, but they are discussed in the context of teacher behavior in the next chapter.

Structure of Learning Material

Everywhere, there is a growing awareness of the structure of knowledge as it pertains to subject matter and to student motivation. In the writings of Bruner (1960, 1961, 1964), Ausubel (1960, 1963a, 1965), and many others, we find emphasis upon the organization and meaning of knowledge as significant variables in the learning behavior of students. Scholars urge that the structure and method of each discipline be stressed in the school curriculum (National Education Association 1962). And there is recognition that knowledge, when it is acquired, is organized by the learner into what is called a *cognitive structure*. New knowledge can be taken in (learned) only in relation to relevant concepts, information, and understanding already possessed. At any given point in time, these cognitive materials exist in the mind of the learner in certain relational patterns. The structure of each pattern is determined by whatever meanings have been attached to the bits of material incorporated. Meaning, in this sense, as defined by Weir (1965) is "... the order imposed upon experience by the individual as he becomes aware of the interrelationships between the self and the phenomena encountered in his experience" (p. 281). These meanings

as they are organized constitute the cognitive structure which is always in a state of change and development.

In teaching, we are constantly involved with the development of cognitive structures. To accomplish this with efficiency, we must have more than an academic knowledge of the concept of cognitive structure. As teachers become involved with cognitive structures, they must be sensitive to the interaction between the cognitive organization of the learner's present knowledge and the structure of the knowledge to be acquired. When a new learning experience is encountered, the outcome derives in large part from the interaction of two conditions:

(1) the status of the student's cognitive structure to acquire the new learning; and

(2) the organization of the new material to attract and satisfy the learner.

Under ideal conditions, each learning experience should merge with the next to form a complete process. Even a casual examination tends to reveal that, in reality, this is not the case. Continuity in student learning is difficult to guarantee and comes only after concentrated efforts on the part of the teacher.

Why do students evidence unevenness and dissonance in what they learn? For a start, we can admit that a very large part of what we call student learning is not related to meaning. It is rote learning, not because the teacher intends it to be, but for other reasons. Sounds that say a definition, explain an event, describe a situation, or detail an operation are memorized and, for a short time, can be repeated more or less on demand. Because the meanings have not really been acquired, the sounds are soon lost. Visual images of words, designs, maps, and other stimulus materials pass away for the same reason. In other words, content acquired in this form is not fitted into the cognitive structure on any permanent basis. It clings only as superficial or peripheral material which could become integrated into the pattern only with some special attention. Teachers depend too much upon the student to do the integrating in a silent and motionless fashion. Instead, by saying, writing, or in some way applying the material along with cognitions already present, the student is most able to make meanings become evident to himself. Left unattached in terms of meanings, the new material seems to fade away, possibly to be recalled, understood, and applied later, but the risk that this will happen is too great.

Thus, in our haste to teach a great deal of material, we sacrifice much of it to permanent loss, and we create poor learning habits for students. More than this, we rob them of the joy they could acquire from meaningful learning. One job for the teacher, then, is the skillful use of experiences that will prepare the learner to learn new material because he understands and can apply his earlier knowledge.

Preparing the Learner

One approach to preparing the learner to relate meaningfully to new material is described and tested by Ausubel (1960). He prepared learners by presenting to them a set of concepts appropriate and relevant to the learning of new and unfamiliar material. He called these concepts "advance organizers." Learning of the advance organizers improved learning and retention of new materials which we take as evidence that the new material, as a consequence of deliberate preparation, had more meaning for the students. A similar outcome was found by Schuck (1969) who referred to his approach as "set induction." One group of teachers was given special training to prepare them to develop "sets" in students prior to the presentation of new material. Later, students of the teachers who used the set induction techniques (experimental group) were compared with students who had not been exposed to these techniques (control group). Interesting outcomes are reported. Students in the experimental group achieved at significantly higher levels and had better recall of the subject matter. Students rated the teachers who had been given special training as the most effective.

In two experimental studies, we have seen the value of set induction or advance organizers in improving learning of subject matter. In a study reported by Siegel and Siegel (1965), evidence of another kind is shown. They induced in one group a "conceptual set" and in another group a "factual set." It was found that students with the set to learn concepts were adversely affected by emphasis on facts. Conversely, students who were prepared to learn facts were handicapped by the teacher's emphasis upon concepts. Thus it is evident that the "set" employed by the teacher must be logically related to the learning it is designed to improve. Specific suggestions for inducing "sets" are presented in the discussion of teacher behavior in the next chapter.

The "organizing center," as discussed by Goodlad (1962) and Herrick (1968), is a concept that allows for individual differences among learners in a way that will increase motivation. Regardless of the success of efforts at set induction, each student comes into the new learning experience with a unique cognitive structure. New material, to be of maximum interest and suitability for each student, then, must have a complex organization. An "organizing center" is the large topical umbrella that covers a body of learning content much in the way a unit on "transportation" might be conceptualized. Ideally, such centers of organization should provide:

(1) many levels at which students can approach the subject matter;

(2) many kinds of student responsive behaviors involved in its methodology;

(3) the possibility to move in many directions away from it; and

(4) very simple to quite complex organizational aspects within it.

When these qualities are present and evident to each learner, we can anticipate increased interest. Each student should be encouraged to make contact with the material at his unique level of understanding. His own background of experience makes the learning of whatever has meaning for him a unique possibility. Different perceptions occur, and the variety in a single class is amazing. That each student make a response in terms of his own awareness is a necessity. Overt responses are more effective for young, apathetic, and low-motivated students (Rippey 1965). For most students, the overt response that is easiest to make is to say something. If they can talk about what they find in the learning event, the experience is made richer and more personal. This, in addition to intensifying individual enthusiasm, has the advantage of broadening the base of knowledge and insight for everyone. As different thoughts emerge, they stimulate further thought and discussion. It is common to find several fortuities growing out of this happening:

1. Teachers gain insight concerning personality variables, levels of student comprehension, expressive abilities, and interests of individual students.

2. Thoughts and perceptions of the common topic begin to fall into patterns that the students will recognize and discuss.

3. Students and the teacher may develop new respect for the ideas of a student whose contribution stands out.

4. Students who see no joy in dealing with the duller aspects of the topic may find an interesting facet they would otherwise have missed.

5. New thoughts may emerge and lead to further pursuits by the class or by a subgroup.

The so-called "knowledge explosion" has generated new concepts about the nature of the various disciplines. One of the most significant implications of this change is the fact that we can never again consider any discipline as being independent from all others. This observation is most clearly shown in contemporary views about social studies. In his discussion of opinions concerning interdisciplinary learning in social studies, Chatterton (1969) makes a point relating to motivation. He has observed that when elements of two or more subjects are brought together, students showed increased interest. Subjects previously seen as entities somewhat in isolation when they are brought together, create a measure of potential conflict. Students become interested in seeing how the conflict will be resolved. Too often, the teacher resolves this conflict by "telling," thus robbing the enthusiastic student of the pleasure he would get in resolving it for himself. While interdisciplinary teaching finds an obvious base in social studies content, it can be applied in other areas also. We could expect increased student interest in any well-planned effort to combine areas of thought.

Teachers can find ingenious ways to integrate material, to make it interesting, and to involve student action in the learning process. A few examples have been selected to illustrate different applications of concepts already discussed.

A unique approach is described by Clarke (1969) in an article entitled *Simulation for Stimulation.* A political convention was simulated by a whole school in a major effort to substitute action for words and to produce student involvement. Important to note, also, is the careful attention given to evaluation of the project. It was found in the follow-up investigation that the project objectives had been attained. Increases in motivation, involvement, and achievement at all ability levels were evident in students.

It is not unusual to find a school printing a newspaper. Neither is it uncommon for teachers to use commercial newspapers to supplement teaching content. One class combined the two approaches, studying newspapers to learn about all the content areas included, then publishing their own weekly newspaper. Motivation was excellent, and students improved in achievement, thus attaining all objectives for which the project had been intended (Krich 1963).

A much different kind of project is described by Richter (1962). A fresh approach to a library program was based on the deep immersion principle of the "method" school of acting. Interest in library work intensified as a result of the program. The literature of education frequently contains reports of projects like these, and teachers who seek new ways to motivate their students should find such suggestions helpful.

Another way that has been found to increase motivation and improve learning is to approach subject matter, not as a total class, but in smaller groups. There are many ways to divide topics and to create subgroups in a class.

A method that is gaining in popularity is sometimes referred to as *team learning.* Although the technique must take a variety of forms from place to place, certain common characteristics remain evident. First referred to as team learning by Graffam (1964), the approach, as he describes it, has these qualities:

(1) emphasizes the creative development of social and cognitive abilities; and

(2) recognizes that growth through individual effort can be augmented through group processes.

As Graffam used the technique, certain class objectives were selected as appropriate for subgroups to seek on their own initiative. Each team elected a leader or chairman. As part of their learning, each group produced a tangible product relating to its particular body of content

and its objective. At the end of the experience, all members of the team received identical marks. The fourth grade of one school used team learning extensively (Poirier 1967). The experience was found to have a liberating influence on students. Their attitudes toward school became more positive.

Motivation tends to improve when students are given opportunities to select what they want to learn and are given the responsibility to pursue their objectives by their own methods. Tasks that are chosen tend to retain their favorable qualities, or even to become more attractive, even though some failure is experienced. Assigned tasks often become less attractive in the face of difficulty (Greenbaum, Cohn, and Krauss 1965).

Interest in school learning is increased when students help others to learn (Hipple 1969; Driscoll 1969). Schools are finding that large-scale involvement of students helping at all levels below their own grade placement is an effective technique for improving motivation. Both the helped and the helper are brought into more intimate contact with the material to be learned. Communication of the learning content to the learner stands to be improved through the use of student-oriented language which teachers may be unable to use very effectively. Both students tend to acquire a sense of responsibility not generally seen in activities involving an entire class or even a small group. Subject matter gains a new value as the medium through which an intimate interaction between two students takes place. While there are hazards inherent in such projects, it is difficult to identify them precisely. Each experience is different and encounters its own set of complications.

Perhaps the most common technique teachers use to stimulate motivation with content material involves working with one student at a time. Individual requirements of one kind or another lead to the selection of a personalized approach to working with a student. It may be the selection of easier and more interesting reading, leading a child to explore his individual interest quite apart from the routine of the class, allowing a pupil to prepare and report on a topic he brings up, or suggesting enrichment topics to be selected by students who want to pursue them. We know that students tire of the usual, the routine, and that they enjoy a change. And research has shown us that feelings of success relate closely with the preferences students have for certain topics (Inskeep and Rowland 1965). A massive enrichment program for all fifth and sixth grade students is described by Remavich and Zilinsky (1963). As a part of his regular school day, each student was allowed to select from several possible areas of enrichment. Students reported that learning was more interesting and more exciting under these special conditions.

Innovative Programs

Continuing to think about school motivation, let us turn our attention to educational change. Underlying most of the innovations we see around the country is a common attempt to take student needs into account. In each program, then, we can expect to find elements that increase student enthusiasm. We have already seen that change in and of itself has a motivating effect. Obviously, space allows us to consider only a selected few of the most popular and noteworthy developments. We must keep in mind, also, that our purpose is to focus upon program elements which stand out by having a significance in motivation.

Earlier Programs

Elective courses, tracks, readings, and honors courses are a few of the earlier efforts to accommodate to student interests and needs. Down through the years, however, the amount of freedom allowed to students in selecting a program has tended to vary. High schools have been victims of the changing pressure from colleges to require certain high school courses. Recent years have brought the requirements for more science, mathematics, and foreign language—a fact that has forced many students away from the creative and performing arts, home economics, shopwork, and the like. This condition, together with increased pressure for high grades, may have produced the findings reported by the Purdue Opinion Panel's survey of a representative sample of adolescents (Leidy and Starr 1967).

1. **There is a noticeable decline in students' enjoyment of school.**
2. **Students want more involvement in school matters.**
3. **Students want considerably more freedom to decide things for themselves.**

This movement, of course, is most in evidence on college campuses. As a result of student dissatisfaction, colleges are reexamining their general education requirements. That students have the power to affect the school's program is evident in the trend toward Black Studies programs in colleges and in an increasing number of high schools. Students have even demanded and have been given remedial services to prepare them for academic life.

The practice of dividing the curriculum of the secondary school into three or more tracks has become a common aspect of many schools. Three usual programs are: vocational, general, and college preparatory. Originally intended to serve the needs of more students efficiently, the track plan has failed in many instances to accomplish its purpose. A diversity of problems has arisen:

1. Students and parents find it very difficult to make decisions that have such far-reaching consequences. Election of a complete curriculum at one time and so early in the life of the student became an

insurmountable problem. Guidance techniques have not been sufficiently helpful.

2. Social stigma have become attached to certain tracks and have assumed influence over student choices.

3. Initially, schools maintained rigorous control and strongly resisted the efforts of students to cross boundaries between tracks. There is a growing tendency to relax these boundaries and to allow more flexibility.

Advanced Placement Programs initiated in 1954 have grown to large proportions. By 1964, more than 2000 high schools were offering courses carrying college credit in 888 colleges (College Entrance Examination Board 1964). In many schools, these programs have dried up the supply of students for readings and honors courses. This is unfortunate because the values of each are different. Perhaps new forms of voluntary study and independent study will provide students the chance to investigate topics of interest and to pursue them with a sense of personal responsibility.

Nongraded (Continuous Progress) Programs

A movement toward nongraded programs, begun during the first quarter of this century, has experienced rapid growth in the past two decades. Initially conceived as suitable for the elementary school, these programs are now being adapted and applied in secondary schools, also. In the following quotation, Goodlad (1965) captures the theme of the nongraded school:

> . . . the proper question to ask in starting a child off on his school career is not, "Is this child ready for school?" but "What is this child ready for?" This is the most pregnant idea and is, indeed, at the heart of nongrading (p. 57).

It is necessary, in order to accommodate to this idea, to bring about massive changes in the school itself. Changing the name of a group from "first grade" to "Miss Smith's room" is not enough. As Goodlad's statement implies, the school must be prepared to take the child with whatever readiness he possesses. Then it must build a program wherein he will make continuous progress toward whatever potential goals await him. It is not difficult to see that an ordinary elementary school would be poorly equipped to meet this objective.

Our interest here does not allow us to describe the characteristics of a nongraded school program. Instead, we are concerned with those components that relate to student motivation. At least four extremely important elements relate directly to this topic:

1. New expectations are held for the child. In a graded school, the child is expected to move successfully into and through a prescribed

curriculum at an established rate of speed. More realistic expectations characterize nongrading. The child is expected to accomplish tasks as well as he can, to develop skills as rapidly as he reasonably can, and to move through the school's program, achieving at his optimum rate.

2. Children find increased opportunities to develop positive feelings about themselves. Continuous progress, regardless of rate of achievement, implies success. Instead of large numbers of children having to learn to live with failure, there is pleasure associated with success and achievement. Thus, an anticipation of success is built and this, in turn, builds future success and self-confidence. In our discussion of achievement motivation, the negative effects of a failure orientation were evident.

3. Emphasis is placed upon intrinsic rewards of achievement rather than upon extrinsic reinforcements. Children's achievements are measured in terms of goals attained rather than of their position with respect to a norm or standard. The child is assessed against the learning material and not against other learners. The fact that the child's and the teacher's attention is focused on material and goal attainment constitutes intrinsic reinforcement.

4. Most nongraded programs require the student to make frequent changes from room to room, teacher to teacher, and group to group. These changes lighten the day, increase interest, relieve tension, and generally improve motivation for most students.

While nongrading is taking root and spreading in high schools, the trend is not sweeping the country. Enthusiastic reports come from several places where wholehearted efforts have developed. There is no better spokesman for nongrading in high school than B. Frank Brown (1963) whose writing served as the primary source for the comments here. In addition to the elements listed as characteristic of elementary programs, two others are found in high schools:

1. Students move away from rote learning and simplified explanations and involve themselves with the process of inquiry. (More discussion of the motivational values of discovery learning follows in another section.)

2. Students are given more than ordinary responsibility for their own learning. This draws upon the competence motive proposed by White (1959) and discussed earlier.

Of all the innovations to be developed to the present time, there is little doubt that nongrading is the most radical in its impact. Schools that undergo an immersion in the philosophy and psychology of nongrading find themselves thoroughly revitalized. Teachers become more enthusiastic and find teaching a greater joy. An aura of excitement

begins to pervade the school and, for a time at least, wonderful things seem to happen. Despite the fact that scientific evaluations fail to reveal consistently measurable advantages, few observers and fewer participants remain skeptical of the value of nongrading.

Team Teaching

Another innovative movement with a vast implication for motivation is team teaching. Our intent here is to point out and briefly to discuss these motivational components. Readers who seek descriptions of the characteristics of a team teaching program are referred to the works of Trump (1965), and Shaplin and Olds (1964). Like other educational changes, team teaching takes a variety of forms when local faculties express their individualities. This flexibility is an inherent asset of the technique, but it creates problems when we attempt an analysis. Because of this, our discussion will fail to mention valuable components of some projects and will deal with elements not seen in others.

Complete projects of team teaching involve more than a division of the faculty into teams of two or more teachers. The changes wrought in a school are extensive. As each of the following motivational factors is discussed, the impact of these changes should become apparent:

1. Student interest and enthusiasm are intensified by the addition of a new dimension of instruction. Teachers who are afforded the opportunity to deal with their specialties do so with zeal and insight which are contagious to students and fellow teachers. More topics and interesting sidelights are included because teacher time is efficiently scheduled, thus allowing time for embellishments.

2. Ordinarily, because teacher-aides relieve the teacher of routine chores, he has more time for contact with students. A problem of which educators have been aware for many years is the abbreviated amount of time students have for personal contact with teachers. At the same time, we know that motivation is intensified when the learner can shed his cloak of anonymity and assume a significant place in the teacher's actions. Weaknesses in basic skills, communication, and understanding can be overcome, thus helping students to gain new feelings of adequacy. Closer personal contact helps the teacher to know and understand the needs of students which, in turn, provides a base for improving instruction and motivation.

3. Community resource persons may enliven the treatment of a topic by their participation as team members. Use of community consultants is by no means exclusive to team teaching projects. There is, however, a quality in the atmosphere created by teaming, a quality that seems to cause teachers to look more appreciatively at the contributions of others, both fellow teachers and consultants. Students, also, tend to

respond with more than ordinary ardor when outside specialists meet with them. It is not uncommon to see the lazy and apathetic student come to life when someone not directly associated with the school starts to interact with the class.

4. It is usual to find in team teaching frequent and well-planned use of technical aids. In a later chapter, the importance of media in motivation is discussed. It is sufficient to note here that team teaching projects seem to incorporate the best examples of teaching with technical equipment and specially prepared instructional materials.

5. One facet of a well-executed program is the variation of group size for particular activities and topics. This provides stimulation while solving a difficult problem of facility for communication. By employing large group techniques of instruction when it is suitable, time and facilities are made available for small group meetings. In the more intimate circumstance, communication is improved. Students talk more and interact with each other on related topics; teachers listen more and thereby learn more about students. According to Kelicker (1966), small groups produce more creativity in student responses, and teachers carry out more functions associated with effective teaching. Obviously, if these conditions exist, we can assume that students will become more avid participants in the learning process and that they will find increased pleasure from their involvement.

6. It is expected that within the team teaching organization, time and facilities will be set aside for independent learning. If this is accomplished, each student has an opportunity to develop a sense of responsibility for his own learning and a feeling of satisfaction when he achieves a goal. Most traditional instruction robs the student of these feelings that are indispensable in the development of motivation that continues beyond the years of academic life.

7. The last factor, but by no means the least important, is the evaluation of instructional effectiveness by the team itself. As a part of the routine of planning sessions, team members periodically or continually evaluate their performance. Awareness of their strengths and weaknesses certainly must contribute to constant improvement. More importantly, the criterion of effectiveness most likely to be used is the success of the team's efforts in getting students interested and involved in the learning program. Thus, motivation becomes a central issue around which the entire team effort is developed.

Grouping and Group Influences

To group or not to group has been a perplexing problem for educators for several decades and is a problem that will likely be with us for some time to come. Grouping, as it is used here, refers to some approach

to clustering students in a way that produces more homogeneity than would result from a randomized assignment to classes. The most frequently used criteria are the results of achievement and intelligence tests, along with the recommendations of teachers and counselors. Assessments of the effectiveness of various techniques of grouping are frequent in educational literature, and one can find support or lack of it for almost any viewpoint (Franseth 1963; Jones 1966). Those who have looked deepest into the problems associated with evaluation of grouping practices note that when significant differences are shown, they favor the most able students at the expense of those of lower ability. Less able students may miss the stimulation produced by the more able students (Jones 1966). Cawelti (1963) reports that, while there is general satisfaction with the results of well-developed grouping practices, high school teachers find trouble motivating low and average groups.

One of the most extensive studies of ability grouping was carried out by Walter R. Borg (1966) who studied more than 2500 students in Utah. His numerous findings cannot be covered here except to a limited degree. Data covered the range from fourth through twelfth grade. He concluded that:

1. Achievement of elementary school pupils was not significantly higher in ability grouping.

2. There was a tendency for superior-ability students to show greater gains in arithmetic and for average students to gain more in science when they were ability-grouped in junior high school.

3. Ability-grouped students were more often classed as overachievers.

4. Students in randomly-grouped classes developed better study habits in elementary school.

5. Ability grouping did not rob average- and low-ability groups of leadership.

6. Student problems were fewer in grouped classes in junior and senior high schools.

7. Placement of a student into a lower-ability group tends to depress his self-concept and self-acceptance. On the other hand, a personality inventory failed to reveal feelings of inferiority in low-ability groups.

Regardless of our personal views about grouping, we still face the fact that students spend their hours at school in one kind of group or another. Only infrequently does the choice of a group fall to the student. We have failed to give serious consideration to this problem of school organization despite our full awareness of its significance.

Groups have strong influences upon the feelings and behaviors of constituent members. Why is this true? Because man has an apparent need to affiliate with others—people need people. The individual, at times, is willing and anxious to give up his autonomy and to follow the will of others in order to be an accepted member of a group. A fascinating body of literature has been developed by the report of research and theory relating to group functions, but there is not space here to deal with it. Its importance for teachers who work with groups constantly must be recognized, and they are urged to become more knowledgeable and skillful by their own inquiry.

There is a viewpoint, and it is strongly supported, that the peer group influence upon high school students is a deterrent to school objectives. Coleman (1961), in his research on this matter, found that students in elite, or leadership, roles held the school and scholarly activity in low regard. He noted, too, that athletes were more popular than scholars. The same, or similar, findings have been reviewed by Boocock (1966) who formulated two hypotheses that relate to peer acceptance and school learning:

1. On the basis of security and acceptance in interpersonal relationships, a student will have a positive attitude as well as freedom from conflict, and therefore, he will be better able to learn.

2. Achievement may be a compensation for failure and rejection in social relations; thus school learning may be hindered by strong group satisfactions.

Let us examine these two viewpoints in more depth. At issue are the conditions necessary for academic achievement. The first proposition is built upon the concept that until an individual's need for security and acceptance has been satisfied, he cannot devote his energies to cognitive materials. Maslow (1954) supports this position, as noted earlier, by placing man's needs in a hierarchy constructed on the contention that progress from a lower to a higher order need depends upon adequate satisfaction of the needs that are most basic. He places *belongingness* at the third level, beneath *esteem, self-actualization,* and *aesthetic needs* which are at the fourth, fifth, and sixth levels, respectively. Speaking to the Nebraska symposium on motivation, Maslow (1955) described the self-actualizing person as sometimes showing no need for people and even feeling hampered by them. His explanation of what might appear to be an inconsistency between these two thoughts would, of course, be that the person's belongingness needs were filled by a small amount of acceptance and love.

There is some evidence that feelings of adequacy, belongingness, and esteem may not be necessary for high achievement need. As noted earlier, Martire (1956) found students with the highest achievement

motive to feel considerable dissatisfaction with themselves. The theory of cognitive dissonance as proposed by Festinger (1957, 1968) is built upon the proposition that energy for achievement comes from discord and conflict. Compensation has been an accepted mechanism in psychology for generations, and it remains in evidence in human behavior as it relates to achievement in school.

What, then, are the relationships among satisfaction of the need for affiliation, group influences upon behavior, and academic motivation? To say that they are simple and direct would be to ignore the complexities of human behavior and of group dynamics and influence. Individuals have multiple needs which are not always in accord. What satisfies one need may serve to postpone or deny gratification of another. For example, a student with high need for achievement will find that to affiliate with or to be placed in a group where achievement is taboo requires him to make a decision. If his need to achieve outweighs his need for acceptance in the group, he is most likely to work and to live with the resulting rejection. A much more frequent case is the student who elects to go along with the crowd and forego or postpone his need for achievement. Clarke (1962) and Nash (1964) found that underachievers seek peer-group acceptance and social relationships to the extent that this takes precedence over academic pursuit. Also, it was found by Granzow (1954) and by Kurtz and Swenson (1951) that in grades four to six, at least, underachievers had fewer friends, and the attitudes of their friends toward academics were less positive than were the attitudes of achievers' friends.

Another kind of situation is encountered by the student whose need for achievement is low but who finds himself in a group where achievement is held in high regard. To attain status in the group, he must work for achievement. If he sees the others in the group being rewarded, he is likely to imitate their behaviors (Clark 1965). Assuming he has the ability to achieve success for himself, the group influence will have helped him to develop a stronger need for achievement while he is satisfying his affiliation needs. The effects of imitative behavior must not be discounted in motivation. Parents and teachers are not quick to realize that children tend to imitate what they see rather than what they are told to do. This fact makes the influence of the group an all-powerful one in the school life of the child.

A student who finds that he cannot achieve the success demanded by the group faces a serious problem. If he is unable to escape from the group, or if he has an intense need for affiliation, he is ripe for appeal to the baser needs of the group as a clown, a goat, or a servant for the leadership. Teachers see this develop often but can do nothing about it if the student is forced to remain where he is. Of course, the student

has other alternatives. He can withdraw, become hostile, or resort to any of a variety of other behaviors.

Groups exercise an influence toward uniformity (Festinger 1954). Whether or not an individual bends with that pressure is a matter of question. In general, the influence of the group can be viewed as a crucial factor, an "acid test" in bringing an individual to a decision point in his own behavior. This means that the student whose inclinations are contrary to the direction taken by the group's pressure must either resist its influence or conform to it. Resistance may cause enough arousal in the individual to thrust him beyond the success or failure levels he would otherwise reach. If he conforms, the outcome depends upon a complex of interrelated variables. Ordinarily, conformity strengthens behavior tendencies.

Let us examine two group characteristics to determine a few of their implications for motivation. Without doubt, the most influential qualities of group behavior are cooperation and competition.

Cooperation — Competition: Our era has seen an intense effort to replace academic competition with cooperation. Kilpatrick, an eminent authority on education philosophy appropriate for our changing society, made a strong plea for an emphasis upon cooperation (Frankel 1965). His desire was to make school experience a center for active, energetic, youthful purpose based upon each member's cooperative contribution to the larger interest and welfare of the group. Other pressures have sought to maintain competition as the child's preparation for a world of business and other elements of a competitive society. Persons who seek to maintain a competitive atmosphere in the classroom claim that it arouses motivation and provides an incentive for those who excel. Those who push for cooperation claim much the same advantage but place the glory of achievement in terms of team effort and acclaim. It is the view of Frankel (1965) that neither competition nor cooperation is bad in its own right.

Competition, without doubt, can be a stimulus to achievement if the conditions are right. If the participants feel they have a chance to win or to make a good showing, they will compete. Rote learning for short periods of recall has been found to respond most favorably to competition. Negative effects of competition have been well described by Weinberg (1965). He points out that intense anxiety created by the fear of failure is aroused by highly competitive conditions. This anxiety then leads to a reaction against the school, the teachers, and possibly against society, in Weinberg's opinion.

Children seem naturally to seek competition whether or not it is created for them. We do not have the evidence as yet to know how early in life competitiveness appears, but we know that by the time they are eight years of age, most children show signs of it in several dimensions

of their behavior. In a study not as yet published, the writer investigated the competitiveness of children from two ungraded elementary schools and two schools with traditional graded programs. All four student groups came from middle-class neighborhoods. The mean scores for children in their third, fourth, fifth, and sixth years of school attendance did not differ significantly. Neither did the mean scores for any of the four groups favor either a graded or an ungraded school. Thus it appears that the nature of the ungraded school fails to have the effect of reducing the competitive attitudes of children. If children have an inherent need to match their performance against others, as seems to be the case, it remains for the school to take full, but wise, advantage of it. To avoid the ill effects, we must prevent children from facing frequent failure by controlling the competition to insure success for everyone. Perhaps these suggestions are in order:

1. As quickly as possible, reorient competition from other persons to a self-established standard of excellence. This can be accomplished by providing circumstances in which each child selects a goal for his own achievement and learns to reward himself for reaching it.

2. Utilize competition between groups or classes and reward all students of the group for their efforts toward attainment of group objectives. It might be stimulating to have a student compete with a matched student in a school geographically isolated from his own. By exchange of photographs and letters, each child could get to know enough about his academic opponent to make the competition interesting. Then if the students were well paired, their success would tend to alternate while isolation would prevent some of the social side effects of competition. It seems important that teachers become more aware of the effects of competition and that they develop skill in the wise use of it.

Effects of cooperation are not as well understood and consequently, they receive less attention by investigators. Superficially, they are all assumed to be desirable, but this may not be true. Children do not move as easily into cooperation as they do into competition. They seem to learn cooperation out of repeated opportunities to function as contributing members of a group. When students cooperate, their reinforcement must come from pride in the group accomplishment. This can be possible only if their own part in the product can be seen as having been an important contribution. Creating the appropriate conditions for cooperation takes planning and thought by the teacher. Here are a few suggestions:

1. **Establish groups small enough to allow each student to be active and to share in the group effort.**
2. **If possible, have each group produce a tangible output to show for its work.**
3. **Establish groups that will as nearly as possible assure a place of importance for each participant.**

4. **Avoid having the same leaders take over the groups each time.**
5. **Maintain a close supervision of group activities in order to sustain the cooperative spirit and to avoid interpersonal conflicts.**
6. **Give students enough opportunities to function in groups to let them become comfortable at it.**

We seem to be entering an era when cooperation for its own value has little appeal to students. They are demanding more individual rights and personal dignity as the price of cooperation. They want to know, also, that the total effort has a purpose which is worthwhile to themselves. Wise application of cooperation as a functional behavior for school accomplishment can help teachers to work effectively with the students of today and tomorrow.

Programmed and Computer-Based Instruction

Two approaches to independent learning have been selected for consideration in this section. While there are similarities between programmed instruction and computer-based instruction, there are a few important differences; therefore, we must treat them separately.

Programmed Instruction: When programming first began to find large-scale acceptance in the schools, many expected it to have a sweeping impact. This has not happened, at least not to the extent of original expectations. We cannot bother ourselves with the possible reasons for this failure but instead, we examine the motivational implications of this technique of learning. Programming of learning content involves several critical operations. The significant highlights of a body of content must be isolated for inclusion in the program. These may be facts, concepts, relationships among critical ingredients, processes, and procedures. After these content elements have been arranged in a logical sequence, each subtopic is broken down into smaller steps which are then phrased as questions. Each tiny step, or frame, is built upon the preceding one, with the gap between them so small that the learner can bridge it without making an error. Frames are then arranged in a format that provides for the student to make an overt response following each question. By one simple operation or another, the learner causes the correct response to appear before him and then moves on to the next frame. Each commercially produced program is tested thoroughly before it is published.

These statements describe what is referred to as a *linear* program. It is designed to stimulate the student to emit the response determined by the subject matter as seen by the author of the program. Each small response is rewarded by immediate feedback when the student is shown the correct answer. Since these programs are built in easy steps which guarantee constant success, it is assumed that the learner gets consistent positive reinforcement.

Another technique is called *intrinsic* or *branch* programming. The differences are essentially these:

1. Frames are arranged so as to give the learner a multiple-choice situation rather than the opportunity for a single fixed answer.

2. The different choices made by students key them to go to different material.

3. A short discussion of the learning content ordinarily is presented just before the question is given.

4. When incorrect alternatives are chosen, the student is directed to a place where the explanation of his mistake is found.

5. Pages of the programmed material are organized randomly, thus forcing a student to do each item before he can know where to go for his next item. Skipping around is made very difficult.

For a more thorough explanation of the differences between intrinsic and linear programming, the reader is referred to Crowder (1963).

Many qualities of programmed instruction are psychologically designed to increase motivation. The system and sequence of the program have an intrinsic value in that students see logical organization and find subgoals that can be identified and attained. A feeling of success has positive value in moving the student forward to future successes. Making an overt response involves the student more actively in the learning process. Feedback of the correctness of a response provides an intrinsic reinforcement that is encouraging.

Branching programs have fewer of these qualities than linear programs do, but they provide for more divergent thinking. Also, more complex material can be handled. Students feel increased responsibility for their choices, and there is more intrigue inherent in the branching approach. Brighter students sometimes become bored with the tiny steps of the linear programs, and they feel underchallenged. Branching programs are constructed in such a way as to present easier or more difficult levels of each concept, depending upon the selection of responses to each multiple-choice item. Thus, students of varying abilities can be expected to find themselves "at home" with the program.

In addition to the inherent motivators, there are other implications. Students enjoy the change provided by their involvement in a new experience. Programmed materials are interesting in their format in that they are somewhat like a puzzle which attracts one until it has become a familiar thing. Being able to move as rapidly as one wishes has a stimulating effect. If the program is controlled by a machine, added incentive is created by the opportunity to manipulate and examine the machinery. However, after a while, these exotic qualities lose their appeal, and teachers find that student motivation in programmed

learning has waned. As a full diet, programming has been a disappointment. Its most advantageous use seems to be, for short periods of time, for accelerated study, for making up deficiencies in needed concepts, and for handling a short unit that the teacher either cannot or prefers not to include in the routine of regular instruction. An authority such as Stolurow (1963) feels that programmed learning has a permanent place in the educational program but that its best form has yet to be discovered.

Many qualities of programmed instruction have been incorporated in teaching machines of various types. Their variety and diversity of purpose and function defy description in our limited space. Psychologically, most of them are sound, and few educators can find legitimate criticism on the basis of their effectiveness in instruction. Economically, however, only the simplest are within the budgetary reach of most schools.

Computer-Based Instruction: Certainly, computer-based instruction is expensive, but since it has a lot of versatility, it deserves some attention. A student interacts with a computer in much the same way as he would with a teacher whose full attention could be focussed upon the child's learning.

Typically, the child's name is entered into the computer information at the beginning and is used when the computer addresses him. The amount of student initiative required in a learning sequence can be programmed and modified from one student to the next. Also, the level of difficulty can be varied from one student to another, and for the same student, from one response to the next. Motivation derives from the manipulation of the device, the freshness of the experience, intrinsic qualities of the learning content, and reinforcements given by the computer's reactions to the student's responses. Flexibility which allows the computer to handle various levels of difficulty holds potential for motivating students because their successes can be maximized. Computers can instruct one child, a class, or subgroups within a larger group. Potentials of computers in the instructional process have scarcely been sampled, and the future should see massive involvements, assuming, of course, that the costs can be reduced.

Television Teaching

Both closed circuit and broadcast television in the schools have had a vast impact on students, but television in the home has probably had more influence on them. That television has implications for motivation is obvious. Educational television has fallen short of commercial broadcasting in its ability to arouse people and to have an impact upon their thinking. Chief among the many reasons for this may be the blandness

of ETV as compared with commercial productions. Educators seem to hesitate to present content at an intense and emotional level, thus sacrificing the possible motivational effect upon the viewers. In an extensive study of ETV in ninety classrooms in Boston, Garry (1960) found that pupil attitudes did not seem to change as a result of television education despite efforts to bring about change. He found, also, that students of high initial interest and of high measured intelligence lost interest as the year progressed.

Students can find personal involvement in a television learning experience by projecting themselves into it for short periods of time. However, it is difficult to control and predict the extent of student involvement (Jacobs, Grate, and Downing 1963). It was found in the same study that students seemed to tire of TV when it was used extensively.

Used properly, TV can bring into the classroom many stimulants to motivation not available in the immediate environment. To be of maximum benefit, however, the TV experience must be integrated with the regular classroom learnings. Students must have an opportunity to discuss what the TV brings to them, or else, like any other experience, it is likely to be forgotten.

Discovery Learning

Not enough can be said for the motivational effects of well-conducted discovery learning experiences. If our objective in education is to have students develop a love for learning, then we must provide them the guided opportunities to learn for themselves. They must be encouraged to explore, manipulate, inquire, examine, and form conclusions from their findings. Then they must become aware of the importance of testing their formulations, and they must be helped to develop suitable testing techniques. This kind of education capitalizes upon natural curiosity and, at the same time, provides a sense of personal accomplishment. We have already touched on this topic, and it comes to the fore again in our discussion of teacher behavior in the following chapter. Therefore, it is not necessary to dwell on it further at this point.

6

Teacher Influence

Teachers are the most influential determiners of student motivation. For decades, educational leaders have insisted that this is so, but early efforts to study this influence failed to reveal much of real value. Recent investigations have been more fruitful. Now the influence of the teacher and the learning situation may replace methods and materials as the focus of educational research (Bond and Dykstra 1967; Harris 1969). Already there is a large accumulation of information much of which speaks directly to the concerns of this chapter. Readers who wish to pursue the topic more broadly and deeply are referred to Withall (1949), Flanders (1965), Gage (1963), Medley and Mitzell (1958), Amidon and Hunter (1966), and Page (1963).

Left on their own, without a solid theory of instruction to guide them, many teachers have resorted to feeble and futile attempts to encourage motivation. They have told students how important school is, and they have insisted that schoolwork must occupy a large segment of students' lives. Instilling fear, using threats, giving low grades or high grades, sending notes to parents, scolding or resorting to ridicule have been frequent (Gans 1963). According to Hughes (1963), teachers have restricted themselves to a very narrow selection despite the availability of a wide range of behavior. This is not to say that all teachers have performed in such futile fashion. Others have been resourceful and dynamic, using themselves efficiently and effectively. They have performed a wide range of behaviors, from fairly active direct supervision to thoughtful and planned support. They have been able to get obedience from students when it seemed necessary, as well as initiative when it was needed. To perform so effectively requires extraordinary personal qualities.

Good teaching involves more than knowledge of the topic to be learned. On this point, even those authorities with the most divergent views about teaching can agree. However, the search for a description

of just what competencies are required has been a long and frustrating one. The fact that no satisfactory list has as yet been proposed is not surprising. Teachers are unalike, and good ones are as different as day and night. They are persons, with all the uniqueness and individuality that could be expected in any profession (Combs 1964). This "personness," as Combs refers to it, is the source of whatever commonality exists among good teachers. First of all, they are persons, real and genuine. In the thought of Rogers (1967), "when the facilitator is a real person, being what he really is and entering into a relationship with the learner, without presenting a front as a facade, he is likely to be effective" (p. 45). And it is the totality of the teacher that interacts with students in the school setting, not just his intellect, his physical movements, or his personal warmth.

A serious handicap for teachers is that the traditional language of pedagogy attempts to describe a teaching that does not exist. Teachers are said to *impart* knowledge, *involve* the student, *imbue* him with a love of learning, *instill* wisdom, *implant* ideas, *build* concepts, *enlarge* perspectives, and *control* behavior. These words describe activities outside the learner. Learning occurs from within, students involve themselves, learners come to love learning, concepts develop from perceptions, perspectives widen, and behaviors emerge from the learner. When teachers focus their attitudes and actions upon this concept of teaching, they begin to see themselves differently. They become instruments, dynamic and influential, whereby the conditions develop to maximize the likelihood that motivation and learning will occur.

Teachers' Perceptions

The way a teacher perceives himself, his students, the subject matter, teaching, and his world shapes his performance. Self-perception is at the center of this complex, and thus it should be considered first. Before a teacher can be the real, genuine person Rogers (1967) discusses, he must accept himself. What does self-acceptance involve? Its basic ingredient is a form of love—a sensing and prizing of one's own worth or value as a human being. Both knowledge and understanding of self are gained from sensitivity to internal forces and to the reactions we stimulate in those around us. Perceiving ourselves as worthy and valuable human beings does not require that we be pleased with our behaviors. Actually, one must be able to deal separately with the self and the deed. This is not as senseless and difficult as it seems if one realizes that the two phenomena come from different levels of the personality. The self as we are able to experience and know it is conscious and personal. It does not involve external objects or others—only perceptions of them as points of reference.

Behavior, on the other hand, involves the unconscious as well as the conscious coming into real contact with the externals that surround us. Self-accepting teachers are able to experience their own feelings and actions in an objective manner and face up to them. In doing so, they become better able to make modifications as they are indicated. More than this, the self-accepting teacher is free to perceive external objects and other persons with greater objectivity.

A teacher who aspires to be successful with students must first accept them. Accepting others involves all the states described for self-acceptance. Almost magically, when it occurs, it is communicated to the other. Children, particularly, seem to have a sensitivity that tells them whether or not they are accepted. This communication is sublanguage—experienced as feeling—and the child cannot be fooled by words. Interestingly, when this feeling of acceptance exists, it stimulates the receiver to do something positive in return. In school, the reciprocal action most likely will be to try harder and longer, to attend more closely the significant events, and thereby, to learn more efficiently.

What other perceptions lead to good teaching? In his artful description of a perceptual approach to teaching, Combs (1964) lists and discusses several:

(1) rich perceptions about subject matter;
(2) awareness of how things seem to others;
(3) accurate perceptions of people and their behavior;
(4) favorable perceptions of themselves;
(5) clear and accurate perceptions of the purposes and processes of learning; and
(6) realistic perceptions of teaching methods.

Naturally, Combs has hypotheses about what the terms *rich, accurate, favorable,* and *realistic* imply, and readers are urged to pursue his thoughts further. Since virtually the same points have been covered in earlier chapters, they are not repeated here. Instead, our attention turns to the consideration of several dimensions of teacher behavior and motivation.

Teacher Behaviors that Motivate Students

Unless teaching behavior is further segmented, any discussion of it is ambiguous. A practical approach to making this breakdown is to use as a base the chronological sequence through which teaching develops. Despite obvious overlaps and interrelationships between stages, these recognizable sequential behaviors seem to stand out:

(1) selecting and planning learning activities;
(2) making learning objectives known;
(3) preparing students for the new learning;
(4) conducting and reinforcing learning; and
(5) evaluating learning outcomes.

Each step calls for a variety of activity by the teacher, and student motivation is a necessary ingredient at each point along the way.

Selecting and Planning

While the concepts to be learned by students may be structured by the existing curriculum, teachers have freedom to select and plan their own classroom activities. Student interest and participation are the two most vital motivational components available to the teacher in this stage of the teaching sequence. From their general knowledge of children's interests and from observation of students in class, teachers have a good base for designing interesting activities. A few alternatives should be available for individuals with specific needs. Students can be profitably involved in selecting and planning their own activities. Teachers who use their own behavior to stimulate students at this point in the teaching sequence will find several results. Children can be helpful while being original, inventive, and creative. There is evidence that students have a need for activity (Hill 1956). Although there is some necessity for freedom in the satisfaction of this need, freedom should be released, in part, under guided conditions. Participation in decision-making and planning, with the guidance of a teacher, can be a constructive way of satisfying the need for activity.

Children get pleasure and learn a great deal from making the necessary displays, arranging equipment, and attending to other aspects of preparation. Two advantages come from their participation—a closer personal involvement and better understanding of the functions and meanings of each component part in the learning experience being planned. The new activity becomes more than just something happening to them—it assumes a personal significance. More than this, while exploring possibilities, manipulating parts, and organizing them into a meaningful sequence, the student opens up new avenues for learning.

New learning activities should contain several appeals to motivation in order to maximize the impact upon students. A variety of student behaviors should be called for as a means of overcoming boredom, while at the same time, taking individual learning styles into account. Skinner (1968) suggests that "bright colors, variety, sudden change, big type, animated sequences—all these have at least temporary effect in inducing the student to look and listen" (p. 105). Temporary appeal, while it will not carry an experience along to its completion, can serve to get the attention of students directed toward what is to be learned. At strategic times, introduction of a unique object or event, use of a piece of equipment, or a surprising application of some kind should be included. Motivational value is increased if students are left to find this uniqueness for themselves or, at most, are encouraged to look for it.

Partially concealed but identifiable objects or thoughts have appeal for the finder. Making them too obvious, however, is likely to destroy the desired effect.

Teachers are challenged by the necessity to use themselves creatively. At first, they may struggle helplessly to find ways to increase motivation, but with practice, they improve. As their efforts begin to pay off, they find that learning sequences develop and progress more smoothly and that students acquire more learning.

Making Objectives Known

Groping aimlessly through the curriculum or doing what one is directed to do is not a stimulating and pleasurable way to learn. It is not surprising that most students tire, "turn off," and fail to develop an intrinsic motivation for academic learning. A love of learning develops, not from dependence on the teacher or some other external agent, but from one's own experiences. At entrance to school, children have a natural motivation to ask, "Why?" By their own behavior, teachers can build upon this motive. Children can learn to set goals and standards for themselves. By the time they are in high school, according to Leidy and Starry (1967), students want more involvement, and they value a sense of discipline and responsibility. Teachers have at their disposal the facilities and opportunities to make school more meaningful. As models, their own behavior has an influence upon the personal development of students. By their behavior, also, teachers create the circumstances wherein purposeful and responsible behaviors are learned from successful application.

In the writings of Bandura and Walters (1963) and Grusec and Mischel (1966), there is evidence that describes the influential value of models. Research reveals that models who are rewarding, who have prestige, who show competence, who have status, and who possess control over the resources of reward are the ones who are imitated. Teachers have a natural access to the imitative life of the student. Unfortunately there are teachers who serve as poor models. One source of poor modeling is seen in teachers who fail to set objectives and standards of excellence for themselves and the class. Either too busy, or simply not aware of its importance, they drift from day to day and later discover that their students are not with them. Other poor models are found in teachers who hold objectives for themselves which they never communicate directly to students. Kept in the lesson planning book or in the back of the teacher's mind, these goals lose their rightful impact upon students. Then there are teachers who do not know what objectives to establish. Their goals tend to be in the nature of work they expect to finish, such as to show the characteristics of a "set" in mathematics, to acquaint students with the major causes of the American

Civil War, or to complete the unit on transportation. These are plans, whereas objectives ought to involve student accomplishment and be evident in behavior following the learning experience.

Goals and objectives are of sufficient importance to be given a significant place in teaching behavior. This implies that, instead of being left in the background, the act of goal-setting should be made to stand out in the awareness of the student. Everyone should see that the teacher feels this is a real and worthy action to be performed. Then, by means of class discussion, committee work, and individual thought, clearly stated objectives should be developed for every unit of learning. Teachers who have directed their own behavior to shape student goal-setting are likely to observe that:

(1). Students enjoy having a part to play in deciding what they are to achieve.

(2). There is consistent improvement in goal-setting effectiveness as more opportunities are provided.

(3). Students tend to become more realistic in assessing their own potentials for success.

(4). Work intensifies in the pursuit of self-selected goals.

(5). Enjoyment is evident as students achieve what they set out to do.

(6). Students improve in their ability to evaluate their own accomplishments.

There are many other outcomes that help doubtful teachers to increase their faith in the responsible behavior of students. But it must be remembered that goal-setting is a matter of developmental learning, and that the first attempts are likely to be feeble and to show the need for improvement. The payoff is great, however, for teachers who make the effort to shape students in this very important behavior. At the same time, the use of clear objectives improves student performance in a learning episode (Connelly 1956).

Preparing Students for New Learning

In our earlier reference to "set induction," only the cognitive conditioners were mentioned. There are affective elements that have a direct relationship as well. Preparatory actions by teachers can help students to develop several entrance attitudes that will increase motivation. Eagerness to enter the new experience can result from teacher behaviors that hint at mystery, that partially reveal interesting content, that evidence importance of new learnings, and that build the anticipation of success and enjoyment. The actions teachers may use to create these feelings are many, and talking is only one of them. Carefully constructed displays that bring an unfamiliar related object into the classroom, that hint at surprise or mystery, or that show personal eagerness, as well as introducing a variety of other stimulating behaviors, are effective. If the class has helped to select the activity and has developed

objectives for themselves, this preparatory stage flows naturally from it and may, in fact, seem to be unnecessary.

Teachers, like coaches, must develop a sense of awareness of when the "learning team" has reached a point of readiness. Coaches plan and devote great care to bringing their athletic teams to a peak of attitude and skill at game time. Athletes are frequentiy heard to comment that they were, or were not "up" for the game. Because of the fact that some students who are also athletes are aware of this, we can guess that their enthusiasm would not be chilled by their knowing that their teachers use the same tactics. Gamesmanship comes naturally to some teachers but must be learned by others. How effectively teachers can learn to create "upness" in students remains to be seen.

Conducting and Reinforcing Learning

Academic learning has always been looked upon as the focus of the school. It is quite natural, then, that opinions concerning the effectiveness of certain modes of teaching tend to be strong and diverse. There are teachers who feel that the actions of telling, showing, explaining, illustrating, questioning, and assigning are the most effective ways to teach. Others lean toward organizing, suggesting, guiding, stimulating, eliciting, and reflecting as being the most effective methods of teaching. The viewpoint presented here supports the value of the behaviors favored by each group. Used appropriately, each behavior has a positive influence upon motivation and learning. Children, by their natures, expect different behaviors from their teachers. Early experiences in the home and at school help to create tendencies of dependence or independence which, in turn, cause the student to expect certain behaviors on the part of teachers (Jakubczak and Walters 1959). To meet this expectancy and to have some influence in shaping it requires the teacher to use a variety of behaviors while conducting and reinforcing learning.

Creating an appropriate climate for learning is an act of teaching that calls for skill in the use of one's own behaviors. This climate is composed of both affective and cognitive elements closely interwoven and interdependent. Before the atmosphere is created, a decision is necessary. What kind of atmosphere is best for the particular learning task to be most fruitful? Eisner (1963) states a clear case for conceptualizing teacher behavior as the principal influence determining the desired atmosphere. He views the teacher as analogous to an actor who successfully creates a mood in his audience. Acting of this type does not betray one's own genuineness; it simply calls for the ability to use oneself to create different expectancies in students from time to time. This can be done without sham and facade.

An example of the range of behaviors required of a teacher is found in the differences between directed and discovery learning. Both types of learning are important and have rightful places in the life of the student (Craig 1969). Certain tasks call for and most efficiently flow from an atmosphere of attentiveness, quiet listening, following directions, seeing illustrations, and practicing certain operational procedures. An atmosphere of this type is best created by teacher behaviors that:

(1) call attention to the necessity for this type of learning;

(2) promise that it will not last too long;

(3) calm the group; and that

(4) deliberately and openly deal with the mood-setting problem by getting students to become aware of themselves as they attempt to assume a mood appropriate for the learning experience.

Students have natural motives of mastery and competence which can be called up to aid them in preparing themselves for a task. Some challenge must be evident, and there must be at least moderate expectancy of success.

Other classroom tasks most effectively develop in an atmosphere of inquiry and active search for knowledge and understanding. Preparing the atmosphere for this approach requires the teacher to provide a model that suggests the proper amount of incongruity (Hunt 1963). What is the proper amount of incongruity for exploration and curiosity to become activated? It must not be so out of reason that doubt and bewilderment are aroused. At the same time, the student must find enough mismatch between existing and potential knowledge to make the exploration interesting. An atmosphere of expectancy can be created by behaviors like these:

(1) hinting at and toying with the ideas and concepts to be discovered;

(2) showing personal enthusiasm;

(3) promise of surprise;

(4) openly discussing the joy of discovery; and

(5) suggestions about the rewards that learning the particular content to be discovered will produce.

The teacher's role in conducting an inquiry experience has been the topic of several recent writings. Skinner (1968) says "The teacher arranges the environment in which discovery is to take place, he suggests lines of inquiry, he keeps the student in bounds. The important thing is that he should tell him nothing" (p. 109). For readers who wish to pursue this matter further, there are the works of Bruner (1961), Suckman (1961), Schwab (1962), Goodlad (1966), Combs (1966), and many others.

By one or more means, the material to be learned is caused to unfold for the student. Teacher behavior during this unfolding process is critical. Ideally, the teacher shapes his own behavior to the nature of the task. If an active role as a presenter of the learning content is appropriate, the teacher should select behaviors that make a suitable impact on the learner. Usually, telling is not enough. Neither is it sufficient, ordinarily, to direct that students read certain pages in a book. While either of these behaviors has legitimate place in the teaching role, neither should be relied upon too frequently nor for too long a period of time.

Optimum levels of motivation and learning seem to be created by multisensory inputs. The natural need for change and variety applies to the mode of sensory input as well as to content. Students have an ability they often put to use in school. This ability allows the head to be turned toward the source of a sound, the face to assume an expression suggesting some form of intelligence, and the ears to remain open to sound waves. But from this point on, strange things can happen—sounds fade into jumbled and garbled nonsense—visual inputs blur and dance in a psychedelic panorama—and internal meanderings of the mind play undisturbed. Magically, when the lecture ends, the organism returns from its trip, assumes a state of animation, and leaves the classroom relatively untouched. Pulling the shades and closing the doors do not occur so readily when more exciting forms of stimulation are used to carry the message.

An oral description of the Grand Canyon, of a day in court, or of the sweep of barbarian hordes upon Rome fails to make the maximum impact. Seeing slides, motion pictures, or some other form of projection not only is a stronger stimulus, but conveys a broader communication. Almost any student—even the unmotivated—derives some learning from this expansive visual experience.

A very subtle condition, one not often encountered in the literature of education, seems to add still another dimension to communication by visual media. One student, when asked to express his reactions to a closed-circuit TV lesson in social studies, provided an insight that startled the writer. Asked whether he learned the same amount, more, or less, than he would have learned in a personal classroom encounter with the teacher and the lesson, the student replied "much more." To the question "Why do you feel this way?" he made his reply: "While viewing a TV lesson or a movie in class, I feel an urgency to catch everything that happens. I know I can't have a second chance to see it or hear it. When the teacher is present and teaching in the classroom, I don't feel this urgency, but feel dependent upon him to tell me again if I ask him to. Also, I know he will say about the same thing several times anyway." The introspection of this student contains a

message of utmost importance and perhaps explains why attention to the screen is greater than attention to the voice of the teacher. Some of the newer approaches to instruction present response situations at frequent intervals and require students to press a button to designate their responses. This necessity to respond at intermittent intervals keeps students alert and motivated. There can be no easy way of hiding from the automatic quality of the machine. Unless a response is made, the light on the individual's panel remains on. Also, some devices record the entire pattern of a student's responses.

Language laboratories have the advantage of requiring each student to make a response. The one-to-one communication possibility between teacher and student provides a stimulating situation, also. The laboratory, with its capacity for several channels of simultaneous operation, allows for a differentiation of content. The potential of the language lab for teaching many content areas has been neglected. Probably that potential, if it were exploited, would have an impact upon many unmotivated students. Not having access to automatic equipment makes it necessary that the teacher create frequent response situations. Research evidence is clear on this point. Frequent interchange between the student and teacher is positively related to classroom learning (Harris 1969).

By their behavior, teachers give direction to students as to the depth of cognitive application a given content is intended to reach. This makes it imperative that forethought be given to the teacher's intent. Is the student only to know and be able to recall a piece of knowledge on demand? If so, this should be communicated in teaching behavior. On the other hand, most academic learning should call for comprehension, application, and deeper levels of cognitive involvement and manipulation. Thus, the teacher needs to engage the students in examining, manipulating, collecting evidence, testing ideas, organizing data, and drawing conclusions. These functions occur only as well as they are planned and guided by the behaviors of the teacher. Assistance in conceptualizing the teaching role in terms of cognitive levels is available in the writing of Jarolimek (1962).

Reinforcement during the learning process has a multidimensional influence to perform. It must do more than provide for the student an external and observable reward or punishment. It has other and more important functions:

(1) encourages the learner by letting him know he has successfully achieved an intermediate goal;

(2) provides pleasure in the learning experience by creating a feeling of rapport between the student and the teacher;

(3) clues the learner that he is on either the right or wrong path; and

(4) stimulates the search for further reinforcement.

Handling reinforcement during the conduct of a learning sequence is demanding of the teacher. Different learners require their own kinds of reinforcement. Some children are in need of extrinsic and tangible reinforcers, whereas others need only the clue of "right," "wrong," or "continue." An objective for the teacher ought to be to create the circumstance in which all learners will begin to respond favorably to the intrinsic values of learning and cease to need extrinsic rewards.

Information concerning the effects of certain kinds of reinforcement has been discussed earlier. Specific application to teacher behavior remains to be examined. Examples of several negative reinforcers used by teachers are shown by Symonds (1956). He points out that often these are attacks upon the student's person in the form of statements like:

"Must you be told over and over again?"
"Some children just can't seem to do what they are told."
"No! No! You're not doing it right."
"Can't you ever listen?"

These statements fail in several respects to have their desired effect on the student. As Symonds suggests, they raise emotions, stimulate defensive reactions, and often cause the student to be confused because he does not get from the teacher's remark the information he needs.

Research findings indicate that praise is not as directly related to achievement as had been supposed. *Frequent use of praise* is not as significant in motivation as is *the kind of praise used* (Wallen 1966). The use of mild forms, like saying "uh huh" and "right," are more effective than stronger forms. A finding of a similar nature has been reported by McKeachie (1961) who determined that large amounts of feedback and stimulation interfered with the progress of highly motivated students. French (1958) found that subjects with high motivation respond favorably to objective feedback. For further discussion of this topic, the reader is referred to the work of Spaulding (1965) and Wallen (1966).

Evaluating Learning

A limited view of evaluation as grading has kept teachers confused for much too long. A first step toward emancipation from the tradition that grades are all-important is for educators to become more aware of the varieties and influences of other, and certainly more useful, forms of evaluation. As human beings, we are constantly evaluating as a necessary aspect of relating to our surroundings. And yet, when the term is used in education, there is a tendency to cloak it in formality and shroud it in misconception and anxiety. In fact, evaluation is so closely interwoven with other teaching behaviors, that daily instruction would not take place if all evaluation were removed. This portion of our discussion is intended to show how certain evaluation activities influence motivation.

The way a student, or anyone else, reacts to being evaluated seems to depend upon who is doing the evaluation and upon its potential threat to the person being evaluated. A few general comments about individual reactions to evaluation are important to note. First, the relationship of the evaluator to the person being evaluated partially determines the outcome. Then, it should be noted that anxiety and tension can be the result of placing too much emphasis upon evaluating students. Frequent and matter-of-fact evaluation can become a routine and unemotional thing. However, the least threatening of all is self-evaluation which, in the long run, accomplishes more.

Any model of learning built upon cognition has the concept of evaluation as an integral part. Students and teachers evaluate learning content, processes, and behaviors. Periodically, more formal evaluations of progress take place. At all levels, motivation becomes involved. Unfortunately, it almost always is in the form of concern for grades as extrinsic reinforcers and seldom as intrinsic knowledge of success and failure. When grades are the principal form of evaluation, they stand to lose their influence for many children. Interest has a tendency to wane when there is no hope of acquiring a high grade. There is a tendency for students who get low marks to band together and to give some degree of support to one another. Also, there is a tendency for students to put their energy where the payoff is most immediately rewarding. Consequently, the behaviors teachers use in giving grades have a tendency to lose influence.

Attention must be placed upon self-evaluation if the teacher is to create optimum motivation. How do teachers direct their own behaviors to influence students to evaluate themselves? Again, two ways seem to stand out as being the most effective. First, a teacher, as a model, can allow students to see self-evaluation in action. He can say aloud, "I didn't do that well, did I? I'm sure I can do better if I try again." Students may begin to show similar evaluative behavior if they see that their teachers aren't afraid of it. Secondly, situations calling for self-evaluation can become a part of the classroom experience. During personal conferences, and later, possibly in small groups, the teacher should help the child to evaluate his own learning. This will not occur easily at first, but with practice, improvement will be evident. Amazingly, when students begin to examine their own progress, they seem to gain new momentum. Occasionally, of course, they may become severely disturbed with themselves and may need the encouragement and help of the teacher. But when this is the case, at least the student has a motive to improve, which may not be true when the negative evaluation comes from an external source.

Much has been said by others concerning the motivational influence of grades. Evidence appears to support the conclusion that students expect to get whatever grade they have grown accustomed to receiving. Going back to Sears (1940), findings relating to levels of aspiration and expectancy have been quite consistent. (Ausubel 1955; Uhlinger and Stephens 1960; Todd, Terrell, and Frank 1962). It follows, then, that students who have received low grades are not influenced to aspire to higher grades, and threats of lower grades may not have desirable influences either.

There is now a noticeable trend away from thinking of grades as motivators. Instead, teachers are finding that comments written on papers returned to students have a positive effect. According to Seidman (1967), the nature of the comment makes a difference in this influence. All-inclusive, judgmental comments tend to stifle motivation to improve. Comments which are selective, supportive, and informational tend to increase the probability of improvement.

MANAGING YOUR CLASSROOM

by
Tom Skrtic
University of Kansas

Managing a classroom of children can, sometimes, be a demanding task. The task can be magnified when there are children who have special needs or problems which may be different from those of the rest of the children. This module will help preservice teachers develop skills in managing the behavior of children. Rather than providing only one type of management skill, alternative ways are provided so that students get a background for determining which way best suits them and for applying the techniques of that procedure.

Student Outcomes

Upon completion of this module, the student will be able to plan for acceptable standards of behavior in a classroom.

Instructor Information

Prerequisites:

Before beginning this module, students should have instruction and/or experience in planning classroom schedules, in planning the physical environment for children, in communicating clear directions to children, and in providing successful experiences for children. It will also be helpful if students understand how to reinforce, differentially, appropriate classroom behaviors and to use verbal and non-verbal rewards for both academic and nonacademic behavior.

Organization:

There are fourteen enabling activities designed to meet the three terminal objectives of this module. Required readings constitute the major portion of this module, but they are balanced with a variety of tasks which require the student to apply information from these readings. Class discussions based on the readings and completed task sheets are recommended for most of the enabling activities.

Content Overview:

The readings provide definitions of specific behavior management techniques as well as descriptions of two divergent models for classroom management. Specifically the readings address the following topics:

1. A detailed explanation of the following: preceding stimulus, consequent stimulus, reinforcer, reinforcement, punisher, punishment, extinction, time out.

2. The goals of misbehavior.

3. The three steps of the teaching process.

4. Effective use of group management procedures.

5. Details on the establishment of a "democratic" or "responsibility-oriented classroom" approach.

Suggestions for Teaching:

Two to three one-hour class sessions will be needed for completion of this module. Because the materials included in this module deal with sophisticated means of classroom management, and because alternatives are presented to students, the instructor will find it helpful to review all materials included before introducing the module. In particular, the instructor will need to be prepared to expand discussions based on the readings, and to guide discussion of the students' responses to the task sheets. Many instructors will find it very helpful to complete all the task sheets assigned to the students before discussing them in class. Specific suggestions for delivery of the module are as follows:

1. Before introducing the module to students, students should be required to read p. 4 of "Overview of Teaching" by Becker, Englemann and Thomas. Other required readings should be assigned in advance of the use of task sheets and/or class discussions.

2. All materials needed for completion of the module are included in the packet. There is, also a list of recommended readings following the enabling objectives. The instructor will need to have an overhead projector for use during the fifth enabling activity. Overheads, handouts, and answer keys are attached following the *Instructor Information* section.

3. Class discussion over the written material will be enhanced if students complete activity sheets prior to discussion of the readings. Activity sheets might be completed by students in small groups during class time or as outside class assignments. Class discussion of activity sheets and integration of module content may take the form of large group discussion.

Evaluation:

Three procedures for evaluation are included in the module. These are incorporated into the enabling activities for the three terminal objectives. Specific evaluation components are included in tasks 4 and 7, which were completed as parts of earlier activities. The final evaluation, task 8, integrates all components of the module and requires students to design their own procedures for managing classroom behavior and to demonstrate understanding of the basis for their choice of procedure(s).

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Prospectus

An area which is often considered frightening to beginning preservice teachers is the management of children's behavior in the classroom. Although it is not possible to anticipate every kind of situation a teacher will encounter in the classroom, it is possible to acquire and understanding of useful techniques for dealing with behavior. This module gives you an understanding of alternative ways of managing behavior, and enables you to develop procedures for your own use that are consistent with your teaching style and your philosophy of education.

Student Objectives	Enabling Activities
1. The teacher trainee will define teaching as a three step process.	1. Reading 1, Becker, Engelman & Thomas p. 4. 2. Assignment: Complete Task 1 "Teaching: A Three Step Process." 3. Class discussion: Trainees give examples of their responses to Task 1, explaining each.
2. The teacher trainee will distinguish between preceding and consequent stimuli.	1. Reading 1, Becker, Engelmann & Thomas, p. 4. 2. Assignment: Complete Task 2 "Examples of Preceding and Consequent Stimuli." 3. Class discussion: Trainees give examples of their responses to Task 2.
3. The teacher trainee will state three general rules for dealing with problem behavior in the classroom.	1. Reading 2, Becker, Engelmann & Thomas, pp. 13-16. 2. Supplemental class handout 1: "Refinement of the Three General Rules." 3. Class discussion: Instructor discusses each point on handout stressing that the students play a large part in deciding on classroom rules (this is not contained in Readings 1 and 2 but stressed in other sections of the book).
4. The teacher trainee will state three principles for using consequent stimuli.	1. Reading 2, Becker, Engelmann, & Thomas, p. 16.

Student Objectives (cont.)	Enabling Activities (cont.)
5. The teacher trainee will define and differentiate between: a. reinforcer and reinforcement b. punisher and punishment c. extinction and time out.	1. Reading 2, Becker, Engelmann, & Thomas, p. 16. 2. Assignment: Complete Task 3 "Definition of Terms." 3. Class discussion: Instructor asks for trainees' responses. Uses Overhead 1 for correct responses. Trainees correct if needed.
Evaluation: Task 4 "Describe the Principles/Procedure I." Instructor evaluates according to general procedures and specific techniques.	
6. The teacher trainee will list and define the four goals of misbehavior.	1. Reading 3, Walton & Powers, pp. 6-7. 2. Assignment: Complete Task 5 "What Goal."
7. The teacher trainee will recognize the specific goal of misbehavior using a) the student's behavior, b) the student's response to correction, and c) teacher's reaction to the misbehavior as determiners.	1. Reading 3, Walton & Powers, pp. 6-7. 2. Assignment: Complete Task 6 "Clues For Identifying the Goals of Misbehavior." 3 Class discussion: Ask trainees to give responses to Task 5 and Task 6.
8. The teacher trainee will describe a questioning sequence designed to teach the student to recognize the goal of his/her misbehavior.	1. Reading 3, Walton & Powers, pp. 7-9. 2. Class discussion: Instructor stresses recognition reflex and "Three notes of caution." Reading 3, p. 9.
9. The teacher trainee will describe group discussion techniques for uniting the class to deal with individual and group misbehavior.	1. Reading 3, Walton & Powers, pp. 12-14. 2. Class discussion: Discuss the ideas of uniting the class, using class discussion to help students understand their behavior, discussion techniques, and the benefits of group discussion (pp. 12-14).
10. The teacher trainee will state techniques for developing responsibility and cooperation in his/her students.	1. Reading 3, Walton & Powers, pp. 7-19. 2. Class discussion: The authors list four practices (p. 7) necessary to their approach. The first and fourth practices have been covered in enabling objectives 8 and 9 respectively. Practices 2 & 3 are discussed on pages 9-12. These practices will need to be expanded in class discussion. The idea of "developing responsiblity and cooperation" in the classroom is summarized on pages 15-16. Review the list on page 16 with the class.

Student Objectives (cont.)	Enabling Activities (cont.)
	Other topics that warrant class discussion are "Mistaken Approaches to Dealing with Children" (pp. 14-15); "What the Principal Can Do" (pp. 16-17) and "What the Parent Can Do)) (pp. 17-19). Be sure to point out the authors' philosophy regarding "rewards" (p. 18).

Evaluation: Task 7 "Describe the Principles/Procedures II." Instructor evaluates according to general procedures or principles and specific techniques.

11. The teacher trainee will describe, in writing, a procedure for specifying and maintaining appropriate classroom behavior that coincides with his/her personal philosophy and teaching style. The teacher trainee will list the three general rules for specifying and maintaining appropriate classroom behavior (and the specific techniques used to support them) under the applied behavior analysis approach.	1. Write: Refine "Describe the Principles/Procedures I" completed under Task 4.
12. The teacher trainee will list the basic principles (and the specific techniques used to support them) for specifying and maintaining appropriate classroom behavior under the "democratic" or "responsibility-oriented classroom" approach.	1. Write: Refine "Describe the Principles/Procedures II" completed under Task 7. Note: By refine it is meant that the trainee revises and adds to his/her completed Tasks 4 and 7 after feedback from the instructor.
13. The teacher trainee will compare and contrast the "applied behavior analysis" and "democratic" or "responsibility-oriented classroom" approaches for specifying and maintaining appropriate classroom behavior.	1. Write: Using revised Tasks 4 and 7 the trainee reviews the principles and procedures and specific techniques of both approaches marking the following analysis code for each point. U - *unique* to specific approach B - used in *both* approaches BDN - used in *both* but referred to by *different name* I - *incompatibility* between approaches.

Evaluation: Task 8. Trainee designs his/her own approach based on the principles and procedures and specific techniques of both systems that s/he feel would fit his/her teaching philosophy and style. The approach must include sections on general principles and philosophy, procedures, specific techniques. Each item in his/her approach must be labeled according to the following code.
ABA - idea for this item drawn from applied behavior analysis approach
ROC - idea for this item drawn from responsibility-oriented or democratic classroom approach
BOTH - idea for this item is my combination of ideas from both
ME - this is my own idea
ABA/ROC - idea for this item is contained in both approaches.

Readings

1. Becker, Wesley C.; Engelmann, Siegfried; and Thomas, Don R. *Teaching: A Course in Applied Psychology*. Chicago: Science Research Associates, 1971, pp. 1-5.

2. Becker, Wesley C.; Engelmann, Siegfried; and Thomas, Don R. *Teaching: A Course in Applied Psychology*. Chicago: Science Research Associates, 1971, pp. 13-16.

3. Walton, Francis X.; and Powers, Robert L. *Winning Children Over: A Manual for Teachers, Counselors, Principals and Parents*. Chicago: Practical Psychology Associates, 1974, pp. 3-21.

Recommended Readings

1. Hall, R. Vance. *Managing behavior* (Part 1). Behavior modification: The measurement of behavior. Lawrence, Kansas: H and H Enterprises, 1974. ($2.25)

2. Hall, R. Vance. *Managing behavior* (Part 2). Behavior modification: Basic principles. Lawrence, Kansas: H and H Enterprises, 1975. ($2.25)

3. Hall, R. Vance. *Managing behavior* (Part 3). Behavior modification: Applications in school and home. Lawrence, Kansas: H and H Enterprises, 1974. ($2.25)

4. Homme, L.; Csangi, A.; Gonzales, M.A.; and Recks, J. *How to Use Contingency Contracting in the Classroom*. Champaign, Ill: Research Press, 1970.

5. Dinkmeyer, Don; and Dreikurs, Rudolf. *Encouraging Children to Learn: The Encouragement Process*. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

6. Dreikurs, Rudolf; and Grey, Loren. *Logical Consequences: A New Approach to Discipline*. New York: Meredith Press, 1968.

7. Dreikurs, Rudolf; Grunwald, Bronia; and Pepper, Floy C. *Maintaining Sanity in the Classroom: Illustrated Teaching Techniques*. New York: Harper and Row, 1971.

8. Glasser, William. *Schools Without Failure*. New York Harper and Row, 1969.

unit 1

Overview of Teaching

objectives

This first unit provides a beginning framework for viewing teaching as the systematic arranging of certain environmental events called stimuli. When you complete this unit you should be able to—

1. Define teaching as a three-step process.
2. Give examples of the three steps in the teaching process.
3. Distinguish between preceding and consequent stimuli.
4. Define two types of preceding stimuli and give examples.
5. Define two types of consequent stimuli and give examples.
6. Describe the procedure called extinction.
7. Distinguish between procedural and functional definitions.
8. Recognize that although consequent stimuli are emphasized in units 2–12, they are only part of the events important to teaching.

lesson

When a child does things at one point in time that he could not do earlier, we are likely to say he has *learned* something new, especially if the changes follow behavioral interactions with the environment. When the behavior of someone else (a playmate, a parent, or a teacher) is responsible for his new learning, the process is called *teaching.* Teaching is changing what children do or say (*responses*) under particular environmental circumstances. Teaching makes learning happen. The experimental study of the events that make learning happen have produced consistent findings that can provide the teacher with a systematic basis for doing her job. Events occurring before and after a child makes a response have been shown to be critical in determining when and where that response will occur again. Environmental events that influence responding are called *stimuli*. A teacher accomplishes a teaching objective by effectively arranging the occurrence of stimulus events for the child—that is, by controlling when and how she talks, praises, shows things, and prompts responses.

Let us examine some examples of teacher-child interaction to provide a basis for analyzing three important steps in the teaching process.

From *Teaching: A Course in Applied Psychology* by W.C. Becker, S. Engelmann, and D.R. Thomas. © 1971. Science Research Associates, Inc. Reprinted by permission.

Teaching is a three-step process:

S → R → S

	Teacher Presents Preceding Stimulus (Signal)	Child Responds	Teacher Presents Following Stimulus (Consequence)
1.	"When did Columbus discover America?"	"In 1492."	"Good."
2.	"How much is 2 plus 2?"	"Four."	"That's right."
3.	"How many times will 3 go into 12?"	"Three."	"No. That's wrong."
4a.	Teacher shows the letter *m* and asks: "What sound is this?"	No response.	No consequence.
4b.	Teacher then says, "This is mmmm; say 'Mmmm'."	"Mmmm."	"Good! You're getting it."
5.	Child is sitting at his desk. Teacher instructs him to take out his reading workbook and complete the exercise beginning on page 41.	Child works at the task for twenty minutes, completes task, and raises hand for teacher to check his answers (or turns exercise in for checking).	Teacher checks answers right and wrong; writes B on the top.
6.	A display of ten objects, all different shapes. Teacher says: "Touch all the red objects."	Child touches the four red objects.	"Fine. You're smart."

CONSEQUENT STIMULI

Four of the examples of S-R-S sequences deal with tasks that have already been taught (1, 2, 5, and 6), rather than with the teaching process itself. They amount to tests of whether teaching has occurred and show us what the end product of teaching is like. When a teaching objective has been accomplished, the child will be able to give the right response in the presence of the relevant *preceding stimuli* or *signals*. To strengthen and maintain right responding, such responses are followed by consequences for right responding, such as "Good," "That's right," "I like that," "Fine." Stimulus events that follow and strengthen right responding are called *reinforcers*.

When children can already make the right responses, we do not see what the teaching process is like. We have to start before the right responses are there to learn about teaching. Example 3 shows a wrong response, followed by a possible punishing stimulus: "Wrong." Teaching sometimes involves discouraging wrong responses by providing punishing consequences, called *punishers*. Knowledge of effective ways to use reinforcing or punishing consequences is of fundamental importance to the teacher.

PRECEDING STIMULI

Equally important are the procedures available to the teacher for getting right responses to occur at the right time. Later sections of this course are devoted to ways of building effective teaching routines and programs. For now, let us examine how preceding stimuli can be used in the teaching process.

Prompting Signals

Look at example 4. The child initially does not say the sound when the letter *m* is presented, and the teacher asks, "What sound is this?" The teacher uses the fact that the child can imitate to prompt the correct response to the letter *m*. Often in teaching we use signals to which the child has already learned to respond ("Say mmmm") to teach him to respond to new signals (the visual letter *m*). By eliminating our prompting signal when it is no longer needed, we teach the child to say "mmmm" with the letter *m* as the only available signal. We have taught him to say the sound of the letter *m*. But have we really? Let's test. We present the letter *a* and ask, "What sound is this?" The child says "Mmmm."

Structuring Task Signals to Teach Concepts

Our teaching procedure as given above to illustrate prompting did not insure that the child would attend only to the visual stimulus for *m* in order to give the right response. The child merely had to say "mmmm" when the teacher held up the *m* card, or wrote on the chalkboard, or asked "What sound is this?" The child did not have to look at *m* to be right. The prompt got the right response to occur, but not under the right stimulus conditions. The imitative prompt helped to cue the "mmmm" response, but we also have to do something about the sequence of teaching examples to insure that the child attends and responds only to the *task signals* (visual *m*) essential for the task response of saying the sound. This is accomplished by varying nonessential stimulus characteristics in the presentation (size of *m*, position of *m*, shape of *m*, and so on), and by presenting *not-instances*, or stimuli that are not *m* (such as *a*, *e*, *n*). These are the procedures essential to concept teaching and represent an important use of preceding stimuli.

A BASIC MODEL FOR TEACHING

It is now possible to define a basic model for teaching new behavior to children. In the presence of instances of a concept class (task signals), get a desired response (task response) to occur by the use of prompts, and follow the task response with reinforcing consequences. Do not reinforce the task response in the presence of not-instances. Do not reinforce other responses in the presence of concept instances. This model views teaching as a three-step process that involves (1) presenting task signals, (2) getting responses going, and (3) providing appropriate response consequences. This model provides a skeleton of the teaching process, which serves as a framework upon which we can build.

REVIEW OF TERMS

Set. A set is a group of things, relationships, or events sharing some characteristics.

Stimulus. A stimulus is an environmental event that does or can be made to influence behavior. The plural of *stimulus* is *stimuli.*

Concept instances are members of the stimulus set included in a concept class; for example, cars and trucks are instances of the concept class vehicles.

Not-instances are stimulus events that are not members of the concept class being taught; for example, horses and dogs are not-instances of vehicles.

Preceding stimuli. Environmental events that precede responding and influence when or how the child responds are called preceding stimuli or signals. After the teaching of a signal, there is a high predictability of what response will occur for a given preceding stimulus. Subvarieties of signals are defined to differentiate the roles such signals play in the teaching process. In this introductory section two kinds of preceding stimuli are defined:

1. *Task signals.* These signals are directly related to the current teaching objectives. Concept instances and not-instances are presented in ways that assure responding one way to concept instances, and responding another way to not-instances. Concept instances and not-instances are both task signals.
2. *Prompting signals.* These are signals that because of past teaching can now be used to get the right response. The prompting signal itself, however, is not important to what is being taught and must eventually be faded out.
3. *Other preceding stimuli.* Later we will define three more classes of signals—attention signals, "do it" signals, and directions.

Response or task response. A response is that part of what a person does that is essential for reinforcement to occur. The response involves the essential characteristics (the criteria for reinforcement) shared by a set of responses that may differ in some ways. The child can say "red" in many ways, all of which will be reinforced. How fast he says "red," the tonal qualities, the pitch, and so forth, do not matter if the essential characteristics for reinforcement of "red" are there. As will be seen in part II, by this definition, responses are operations that have effects on the environment.

Consequent stimuli. Stimulus events that follow responses are called consequent stimuli. They can strengthen responses or they can weaken responses. Those that strengthen the responses they follow are called *reinforcing stimuli.* Those that weaken the responses they follow are called *punishing stimuli.* Responses may also be weakened by no longer reinforcing them. This procedure is called *extinction.*

TECHNICAL NOTE

Two Types of Definitions of Stimulus Events

In talking about the learning process, psychologists use two kinds of definitions for stimulus events: functional and procedural.

Functional definitions. Functional definitions are used to summarize empirical observations relating stimulus events to behavioral events. In this usage, stimulus events are defined in terms of their *effect on behavior.* Each functional definition specifies three things:

1. an environmental event
2. a procedure
3. an effect on behavior

A functional definition for a reinforcer states that a reinforcer is (1) an environmental event (2) occurring after a response (3) that increases the future occurrence of that response. For example, if we observe that children do more math problems when the teacher praises them often for working hard, and do fewer math problems when she does not praise them, we would say that the teacher's praise is a reinforcer according to the functional definition. The environmental event *praise* occurred after *working on math* and *increased working on math*. Consider another example. Mary is observed to finish assignments more rapidly when completion is followed by getting to go to recess than when completion is followed by another work period. The environmental event *getting to go to recess* occurred after *completion of assignment* and *increased speed of completion.* Getting to go to recess functioned as a reinforcer for rapid completion of assignments.

Functional definitions remind us that all children are different and that what works one way for one child may work a different way for another child. It is always necessary to check to see if what you thought would function as a reinforcer or punisher really does work that way with this child under these conditions.

Procedural definitions. The second kind of definition of stimulus events specifies an environmental event and a procedure, but not a behavioral effect. For example, the psychologist might say, "In this experiment, the child will be given a reward for each correct response. By reward I mean a raisin (environmental event) will be given after each correct response (procedure)."

Generally, throughout part I of this text we will be using functional definitions to talk about stimulus events; however, in analyzing the nature of concept teaching and programing in part II, it will be of greater value to use procedural definitions. This shift takes place because the problem of analyzing what to teach in what sequence is better approached through logical analysis than through experimental investigation. More will be said on this issue later. For now, it is important that the student distinguish between the two definitions of stimulus events.

TASK 1

Teaching: A Three Step Process

Directions: Complete the chart below giving your own examples for the three steps of the teaching process (refer to Reading 1, p. 2 if you need examples). Describe three reinforcing and three punishing sequences. Label each in the last column. Be prepared to share your examples in class.

Teacher Presents Preceeding Stimulus (Signal)	Child Responds	Teacher Presents Following Stimulus (Consequence)	Reinforcer or Punisher
1.			
2.			
3.			
4.			
5.			
6.			

TASK 2

Examples of Preceding and Consequent Stimuli

Directions: Give two examples of each of the following types of stimuli.

A. Preceding Stimulus (prompting signal)

1.

2.

B. Preceding Stimulus (structuring task signals to teach concepts)

1.

2.

C. Consequent stimulus (reinforcer)

1.

2.

D. Consequent stimulus (punisher)

1.

2.

unit 2

Reinforcement, Punishment, and Extinction

objectives

When you complete this unit you should be able to—

1. State the three procedures used in dealing with Peter's obnoxious behavior.
2. Concerning the procedures used by Peter's mother—
   a) label the type of consequent stimulus involved in placing Peter in his room.
   b) label the type of consequent stimulus provided by the mother's attention.
3. State three general rules for dealing with problem behavior shown by children in the classroom.
4. Specify three principles about using consequent stimuli, and give an example of an application of each principle.
5. Define and give an example of
   a) reinforcer
   b) punisher
   c) extinction
   d) reinforcement
   e) punishment
   f) time out
6. Specify the difference between extinction and time out.
7. Specify the difference between reinforcer and reinforcement, and between punisher and punishment.

lesson

MOTHER CHANGES PETER (AND MOTHER)[1]

Peter was a four-year-old boy. His mother was having great difficulty managing him and sought help. Peter often kicked objects or people, removed or tore his clothing, spoke rudely to people, hurt his younger sister, made various threats, hit himself, and was easily angered. He demanded constant attention. He had been seen at a clinic and was found to have poor verbal skills. He was said to be very active and possibly brain-damaged.

Peter's behavior was observed in the home an hour a day for sixteen days. During an hour Peter showed from 25 to 112 instances of behavior objectionable to his mother.

From *Teaching: A Course in Applied Psychology* by W.C. Becker, S. Engelmann, and D.R. Thomas. © 1971. Science Research Associates, Inc. Reprinted by permission.

When he misbehaved, his mother would often attend to him and try to explain why he should not do so and so. At times she would try to interest him in some new activity by offering him toys or food. She would sometimes punish Peter by taking away a toy or misused object, but he was usually able to persuade her to return the item almost immediately. Occasionally he was placed on a chair for short periods of time as a punishment. Tantrum behavior usually followed such discipline. His mother responded with additional arguments, attempting to persuade him to stop.

Peter's behavior was changed by the following procedure. An observer in the home would cue his mother by raising one, two, or three fingers. One finger was raised when Peter showed an objectionable behavior. This meant she was to tell him to stop what he was doing (*a warning signal*). If he did not stop, two fingers were raised. This meant she was to immediately place him in his room and shut the door (*punishment*). He had to stay there until he was quiet for a short period. If he was playing in a nice way, three fingers were raised. This meant she was to go to him, give him attention, praise him, and be physically affectionate (*reinforcement*).

Peter's objectionable behavior dropped to near zero within a few days. Follow-up observations showed a continuing good interaction between him and his mother and an absence of the objectionable behavior. He was receiving more affection from his mother and approaching her in more affectionate ways. She was much more sure of herself, provided clear consequences for his behavior, and no longer gave in after starting a correction procedure.

Peter's mother learned that by following his good behavior with attention and affection, and by consistently giving a mild punishment for objectionable behavior when a warning failed, his behavior changed dramatically. His mother was taught how to teach him to behave in a friendlier and more cooperative way. She learned that she had to consistently respond with positive reactions to behavior she wanted to strengthen.

In the next example, Mrs. E. finds out that she does not need to use punishment at all to teach children to be better behaved in the classroom.

A TEACHER LEARNS TO MANAGE AN UNCONTROLLED CLASSROOM OF FIRST GRADERS[2]

Observations on February 1: "Six children were in a reading group and fifteen were working on individual projects. The noise level for the entire classroom was extremely high and went higher just before recess. Some behavior noted included whistling, running around the room (five occasions), yelling at another child (many times), loud incessant talk, hitting each other in recess line. Mrs. E. would reestablish quiet by counting to ten after giving a threat."

Mrs. E. was a young teacher who had not been taught how to manage children. She attempted to control the children by shouting and scolding, but it would only slow down the unwanted behavior for a short time, and she would have to "get on them" again. Figure 2.1 shows the percent of time two of her children were showing behavior incompatible with working and paying attention.

Edward was six years nine months old and of average ability. His teacher described him as distractable, with poor attention and poor work habits. He was not able to comprehend what he read. He never finished assignments. He was often seen wandering about the room or turning in his seat. He made odd noises with his mouth. He was in speech therapy and was being seen by the social worker.

Elmer was two months older than Edward and was also of average intelligence. He apparently started out the school year working well, but got worse. He was described

as nervous and very active. He would not work. He cried or threw a tantrum if his work was criticized. Observers thought Elmer might have brain damage, since he was so very active. He did not stay in one place or on any task very long.

The behavior of most of the children in the classroom was changed by the beginning of the sixth week of the study. The teacher was told to follow three procedures:

1. *Give clear signals.* Specify the desired behavior. Make your rules clear, so that the children will know what is expected of them. Repeat the rules as necessary.
2. *Ignore disruptive behavior.* Do not attend to the behavior you wish to weaken. Get involved with other children showing behavior you wish to strengthen. Praise a child showing behavior incompatible with the disruptive behavior. Play deaf and dumb.
3. *Praise the children for improvement in behavior.* Catch the children being good, rather than bad. Tell them what it is you like that they're doing. Award privileges to those showing good behavior. For example, say "You can lead the salute because you are paying attention so well."

Prior to week six, this teacher used very little praise. After week six, over 90 percent of her comments to children were positive rather than negative. Elmer and Edward changed greatly, as did the teacher and other members of the class. It took some time for the teacher to become comfortable in her new role of being a reinforcer for children, but the children responded to her new behavior whether she felt comfortable about it or not. The classroom became quieter; many members learned to work on task for long periods of time. There was order and cooperation. The teacher found she had more time to teach now that she spent less time trying to control the children.

The classroom referred to above is just one of many where significant improvement has resulted from changing the consequences of children's behavior. In a follow-up to this study it was found that just repeating rules was not effective in changing behavior in the classroom.[3] Only when praise was given for following the rules, and disruptive behavior was ignored, were results similar to those in figure 2.1 obtained.

CONSEQUENCES STRENGTHEN OR WEAKEN BEHAVIOR

Research on teaching has convincingly demonstrated that events occur following behavior (consequences) that either strengthen or weaken classes of behavior. Those consequences that strengthen classes of behavior are called *reinforcers* or *reinforcing stimuli*. The procedure involving the use of a reinforcing stimulus is called *reinforcement*. Those consequences that weaken classes of behavior are called *punishers* or *punishing stimuli*. The procedure involving the use of a punishing stimulus is called *punishment*. No longer following a behavior with a reinforcer can also weaken behavior. This procedure is called *extinction*. Which consequent events strengthen or weaken behavior is determined by investigation. Generally, those consequences we would label as rewards, or the stopping of painful events, have been found to strengthen the behavior they follow. Those consequences we would label as punishing or painful, or the stopping of rewarding events, have been found to weaken the behavior they follow.

In the case of Peter, his appropriate behavior was reinforced by attention, praise, and physical contact. His objectionable behavior was punished by shutting him in his room if he did not comply. He was shut off from possible reinforcement for a period of time to punish his objectionable behavior. This kind of punishment is called *time out* (time out from reinforcement). In Mrs. E.'s class, praise was the main reinforcer used by the teacher to increase appropriate behavior. Ignoring disruptive behavior was an extinction procedure. That is, the teacher no longer followed disruptive behavior with attention (the reinforcer for such behavior).

Extinction versus Time Out

Since extinction and time out both involve withholding reinforcers, the procedures are sometimes confused. The difference is this: in time out, no reinforcer for any response is given for the duration of the time-out period; in extinction, only the response undergoing extinction is not reinforced. When Mrs. E. ignored disruptive behavior, she was withholding a social reinforcer (attention) from that behavior. She was using extinction. At the same time, however, she was giving praise and attention for good working. When Peter's mother used time out (placing him in his room until he was quiet for a few minutes), she was careful not to give any possible reinforcer to him during the period of punishment.

Key Procedures Using Consequent Stimuli

1. Follow responses you wish to strengthen with reinforcing stimuli.
2. Follow responses you wish to weaken with punishing events.
3. Time out is an effective way to weaken behavior. This form of punishment involves withholding all forms of reinforcement for a specified period of time.
4. Extinction can be used to weaken responses by no longer reinforcing them.

Handout 1

Handout for Student Objective 3: Refinement of the Three General Rules

1. Specify in a positive way the rules that are the basis for your reinforcement. Emphasize the behavior you desire by praising children who are following the rules. Rules are made important by providing reinforcement for following them.

   Rules may be different for different kinds of work, study, or play periods. Limit the rules to five or less.

   As the children learn to follow the rules, repeat them less frequently, but continue to praise good classroom behavior.

2. Relate the children's performance to the rules. Praise behavior, not the child. Be specific about behavior that exemplifies paying attention or working hard: "That's right, you're a hard worker." "You watched the board all the time I was presenting the example; that's paying attention." "That's a good answer. You listened very closely to my question." "Jimmy is really working hard. He'll get the answer. You'll see."

   Relax the rules between work periods. Do not be afraid to have fun with your children when the work period is over.

3. Catch the children being good. Reinforce behavior incompatible with that which you wish to eliminate. Reinforce behavior that will be most beneficial to the child's development. In the process of eliminating disruptive behavior, focus on reinforcing tasks important for social and cognitive skills.

4. Ignore disruptive behavior unless someone is getting hurt. Focus your attention on the children who are working well in order to prompt the correct behavior from the children who are misbehaving.

5. When you see a persistent problem behavior, look for the reinforcer. It may be your own behavior.

TASK 3

Definition of Terms

Directions: Define these terms. Remember that functional definitions have three parts: (1) an event, (2) a procedure, and (3) a behavioral effect. (See Technical Note. Reading 1, p. 5 for explanation.) Reinforcement and punishment only have two parts to their definitions.

1. Consequent stimulus:
   a. _____
   b. _____
   c. _____

2. Reinforcer:
   a. _____
   b. _____
   c. _____

3. Reinforcement:
   a. _____
   b. _____

4. Punisher:
   a. _____
   b. _____
   c. _____

5. Punishment:
   a. _____
   b. _____

6. Extinction:
   a. _____
   b. _____
   c. _____

7. Time out:
   a. _____
   b. _____

OVERHEAD 1

SUBJECT OBJECTIVE 5:
DEFINITION OF TERMS: ANSWER KEY

TERM	ESSENTIAL POINTS	ALTERNATIVES
1. CONSEQUENT STIMULUS	A) A STIMULUS EVENT B) FOLLOWING A RESPONSE C) THAT STRENGTHENS OR WEAKENS THE RESPONSE	A) AN ENVIRONMENTAL EVENT B) THAT FOLLOWS A RESPONSE C) AND CHANGES THE PROBABILITY OF THE RESPONSE
2. REINFORCER	A) A STIMULUS EVENT B) FOLLOWING A RESPONSE C) THAT STRENGTHENS THE RESPONSES OF THAT CLASS	A&B) A CONSEQUENT STIMULUS C) THAT INCREASES THE PROBABILITY OF THE FUTURE OCCURRENCE OF THE RESPONSE
3. REINFORCEMENT	A) THE PROCEDURE INVOLVING THE USE OF B) A REINFORCING STIMULUS	
4. PUNISHER	A) A STIMULUS EVENT B) FOLLOWING A RESPONSE C) THAT WEAKENS THE RESPONSES OF THAT CLASS	A&B) A CONSEQUENT STIMULUS C) THAT DECREASES THE PROBABILITY OF THE FUTURE OCCURRENCE OF THE RESPONSE
5. PUNISHMENT	A) THE PROCEDURE INVOLVING THE USE OF B) A PUNISHING STIMULUS	
6. EXTINCTION	A) A REINFORCING STIMULUS IS NO LONGER PRESENTED B) AFTER A RESPONSE C) AND THE RESPONSE WEAKENS	A) A REINFORCING CONSEQUENCE B) IS WITHDRAWN C) AND THE RESPONSE OCCURS LESS FREQUENTLY
7. TIME OUT	A) THE LOSS OF ACCESS TO ALL REINFORCERS FOR A PERIOD OF TIME B) FOLLOWING A RESPONSE C) THAT WEAKENS THE RESPONSE	

ASK 4

Describe the Principles/Procedures

Directions: Describe the general principles and specific techniques described in Readings 1 and 2 for specifying and maintaining appropriate classroom behavior.

General procedures (three general rules for dealing with problem behavior)

(Note: expand these rules according to Handout number 1 "Refinement of the Three General Rules")

Specific techniques (list the specific techniques found in Readings 1 and 2 that are necessary to use this approach)

(Note: the stories of Peter and Mrs. E. should help)

TASK 5

Student Objectives: What Goal?

Directions: List the four goals of misbehavior. In your own words, describe what the student who strives for each goal thinks to himself or herself.

A. Goal: _____ Describe: _____

B. Goal: _____ Describe: _____

C. Goal: _____ Describe: _____

D. Goal: _____ Describe: _____

THE FOUR COMMON GOALS OF MISBEHAVIOR have been described by Rudolf Dreikurs. The misbehavior of children can be dealt with intelligently when it is understood as being directed toward one or more of these four goals.

GOAL 1:	Attention	"I'm not outstanding, but AT LEAST I will not be overlooked if I can obtain special attention, fuss, or service."
GOAL 2:	Power	"I may not be a winner, but AT LEAST I can show people that they cannot defeat me, or stop me from doing what I want, or make me do what they want."
GOAL 3:	Revenge	"People do not care for me, but AT LEAST I can do things to strike back when I am hurt."
GOAL 4:	Inadequacy	"I will not be able to measure up, but AT LEAST if I do nothing people may let me alone."

TASK 6

Student Objective 7: "Clues For Identifying the Goals of Misbehavior"

Directions: Describe the four goals in terms of the child's behavior, his/her response to correction, and teacher's reaction.

GOALS	CHILD'S BEHAVIOR	RESPONSE TO CORRECTION	TEACHER REACTION
1. Attention			
2. Power			
3. Revenge			
4. Inadequacy			

TASK 7

Evaluation: Describe the Principles/Procedures II

Directions: Describe the general principles and specific techniques described in Reading 3 for specifying and maintaining appropriate classroom behavior.

General Principles (What do the authors believe about behavior and how to deal with it)

Specific Techniques (List the specific techniques found in Reading 3 that are necessary to use this approach)

FORMATIVE EVALUATION IN THE CLASSROOM

by
Tom Skrtic
University of Kansas

Learners who have special educational needs–Individual programs, successful learning experiences, and appropriate reinforcement–also need continuous and systematic monitoring of the progress made in learning experiences. Such monitoring must be all inclusive, that is, it must include progress in affective and psychomotor activities, as well as in cognitive ones. Formative evaluation, the assessment of ongoing, in-progress classroom activities, constitutes the content of this module. Since formative evaluation is complementary to diagnostic and summative (final) evaluation, these three types are described. The focus is, however, on formative evaluation, and the preservice teacher is given an opportunity to demonstrate the ability to use formative evaluation.

Student Outcomes

At the end of this module, the student will be able to use formative evaluation in making instructional decisions for exceptional learners.

Instructor Information

Prerequisites:

Before beginning this module, the student should be able to describe the developmental learning patterns of normal and atypical learners, demonstrate appropriate assessment procedures, plan instructional programs in all areas for exceptional learners, manage classroom behavior, and record and report learner progress to parents and ancillary personnel.

Organization:

The teaching time of this module is approximately 2 to 3 hours. The activities are organized into three required readings, class discussion based on the readings, and a final activity that requires the student to plan and use formative evaluation in a subject area. The student is also to relate this activity to other activities in other modules by revising instructional plans and by providing appropriate feedback to learners on the basis of the evaluation.

The first three readings, all of which are required, should be read by the students prior to the beginning of the module.

Content Overview:

Although the focus of the module is on formative evaluation, the required readings contain a description of diagnosti and summative evaluation as well. Specifically, the content includes:

1. An explanation of formative evaluation.
2. An explanation of summative evaluation.
3. Formal and informal assessment procedures based on instructional objectives (diagnostic evaluation).
4. Construction of test items based on objectives.
5. Inferences made from test data.
6. Progress reports to learners based on formative evaluation.

Suggestions for Teaching:

No specific suggestions are needed for teaching this module, except that students should have acces to a classroom so that the final activity, the planning and use of formative evaluation for a subject area, can be made in a real setting. It is *recommended* that the evalaution be made in an actual teaching situation, rather than a simulated one. It is further recommended that the evaluation be done with an exceptional learner so the student will become familiar with the special problems of these learners.

Evaluation:

Some formative evaluation is available to the instructor and to the student in the use of the reading by Popham and Baker. The summative evaluation for the module is built into the final activity. If other formative and/or summative evaluation is desired, the instructor can develop these from the readings.

FORMATIVE EVALUATION IN THE CLASSROOM

by
Tom Skrtic
University of Kansas

Prospectus

Learners who have special educational needs–individual programs, successful learning experiences, and appropriate reinforcement–also need continuous and systematic monitoring of the progress made in the learning experience. Such monitoring must be all inclusive, that is, it must include progress in affective and psychomotor activities, as well as in cognitive ones. Formative evaluation, the assessment of ongoing, in-progress classroom activities, constitutes the content of this module. Since formative evaluation is complementary to diagnostic and summative (final) evaluation, these three types are described. The focus is, however, on formative evaluation, and you will be given an opportunity to demonstrate the ability to use formative evaluation.

Student Objectives	Enabling Activities
1. The student will be able to define formative, diagnostic, and summative evaluation.	1. Reading 1, Bloom, Hastings and Madaus, pp. 61-138. 2. Reading 2, Popham and Baker, pp. 88-107. 3. Reading 3, Scannell and Tracy, pp. 242-248. 4. Reading 4, Cronback, pp. 672-683, (optional). 5. Reading 5, Scriven, pp. 39-83, (optional).
2. The student will be able to compare and contrast formative, diagnostic, and summative evaluation.	1. Class discussion: Based on the readings, compare and constrast the three major types of evaluation, focusing on their use in individualized classroom settings with both typical and exceptional learners.
3. The student will develop a formative evaluation plan for a unit in two curriculum areas.	1. Class assignment: Working individually, select a subject area, choose one unit of study in it, and prepare a plan, including appropriate instruments, for evaluating student progress in a formative manner, i.e., evaluating on-going activities; revising, where necessary; re-evaluating revised activities; and providing feedback to learners. 2. Class discussion: Discuss results of the previous activity.

Required Readings:

1. Bloom, B.S ; Hastings, J.T.; and Madaus, G.F. *Handbook on Formative and Summative Evaluation of Student Learning*. New York: McGraw-Hill, 1971. Chapters 4, 5, and 6, pp. 61-138. (on reserve in Education Library).

2. Popham, W.J. and Baker, E.L. *Planning an Instructional Sequence*. Englewood Cliffs, New Jersey: Prentice Hall, 1970, pp. 88-107.

3. Scannell, D.P. and Tracy, D.B. *Testing and Measurement in the Classroom*. Boston: Houghton-Mifflin Co., 1975, pp. 242-248. (On reserve in Education Library)

Optional Readings:

4. Cronback, L.J. "Course Improvement through Evaluation." *Teachers College Record*, 1963, *64*, pp. 672-683. (On reserve in Education Library)

5. Scriven, M. "The Methodology of Evaluation." In Ralph W. Tyler, Robert M. Gagne, and Michael Scriven (Eds.), *Perspectives of Curriculum Evaluation*. AERA Monograph Series on Curriculum Evaluation, No. 1. Chicago: Rand McNally, 1967, pp. 39-83. (On reserve in Education Library)

Objectives

The primary objective of the program is to produce a learning set such that after completing the program the reader will be able to discuss evaluation in writing or orally by basing the quality of an instructional sequence on student achievement rather than on more traditional criteria. More specific objectives are:

1. The reader will be able to design both formal and informal pre-assessment procedures when given an objective.
2. The reader will be able to construct a test item which measures a given objective.
3. Given hypothetical test data, the reader will be able to make defensible inferences from the information.

Popham, W.J. and Baker, E.L. *Planning an Instructional Sequence*, 1970. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Ask an educator to describe the most important phases of his work, and sometime during his answer the word "evaluation" will surely be mentioned, for both teachers and supervisors alike contend that adequate and continuous evaluation is necessary for the development of an effective curriculum. Unfortunately, the concept of evaluation is rarely defined, and different educators may use this word to describe markedly different processes. If you were to ask, "Who is being evaluated?" or "On what basis is the evaluation made?" the answers you would receive would be varied indeed. However, the majority of teachers most probably discuss evaluation with respect to a particular class's performance on tests of some sort. If you were to continue your inquiry and ask the purpose of such evaluations of students, teachers in most cases would mention grades and report cards. They would use the test performance to make decisions regarding particular students; thus, students who fail a test in English grammar would receive low evaluations, while students who answered all questions correctly would receive high evaluations.

Evaluations should extend beyond the way students perform on a particular test in a given classroom. Clearly it is a reasonable, if somewhat removed, goal of educators to improve the quality of their instructional efforts so that schools will do a good job preparing students for adult life. In order to determine what improvements are necessary in our classrooms we must find out how we're doing right now. We must ask how we can discover if our teachers are, in fact, doing a good job of teaching.

Several ways of evaluating teacher's instruction may occur to you. One way might be consulting principals and asking their opinions of their teachers. Yet because the standards which different principals and supervisors apply may not be equivalent, you can see that using such administrative ratings would make it difficult to compare two teachers from different school situations. Another way to evaluate teaching might be to ask

the students to judge their teachers. In this case, it is conceivable that these student-produced ratings might be influenced by factors such as the sternness of the teacher or the grade which a student hopes to receive.

But there is a way of evaluating a teacher which is independent of his *personal* characteristics and largely free of supervisors' subjective judgments. This method is to judge the teacher on the basis of his students' demonstrated accomplishments, for this is the only legitimate purpose that a teacher has in the classroom—to modify the behavior of his pupils. Why not, then, use pupil behavior changes as the index of the teacher's effectiveness?

In employing this method, five major operations are involved.

1. Establish specific goals.
2. Develop a measuring device.
3. Pre-assess students.
4. implement an instructional plan.

5. Measure and interpret evidence of student achievement.

The first step requires the teacher to establish specific goals for his students. The second step is to construct a device to measure achievement of these goals. Third, the teacher preassesses the students to find out what they already know. Fourth, the teacher devises and implements a plan of instruction designed to promote the students' attainment of the goals. And fifth, after instruction, the teacher must measure student accomplishment *and* interpret its meaning.

A prime emphasis in evaluation should be on devising the instructional objectives. If these goals are specific and operationally stated in terms of observable student behavior, deciding on the measuring instrument will be a relatively easy task. For example, if a teacher's objective reads, "Students will be able to write essays without spelling errors," then it is clear that student achievement is to be measured by inspecting essays for spelling errors.

1.
Study this objective and decide what kind of evaluation would be most appropriate.

Students will be able to solve simple addition problems.

Write your answer in the space provided on your answer sheet.

Since the objective is clearly stated, devising the evaluation instrument means simply selecting the particular addition problems that students are to solve on the test. It is obvious that the behavior on which the student should be evaluated is his ability to add, since this was stipulated in the objective.

2.
How would you measure the attainment of this objective?

Student will be able to shoot baskets from the free-throw line with 70 per cent accuracy.

Write your answer in the space provided.

For this objective, the only appropriate test would be to have the student shoot baskets while his accuracy is somehow recorded. This is one of many examples of a performance test in which a paper and pencil measurement would be unsatisfactory. Examples of other performance tests include making a cake in a home-economics class, employing proper oral techniques in a speech course, reciting a poem in an English class, or taking a timed typing test.

3.
What kind of evaluation procedure would be appropriate for this objective?

Student will identify five literary elements in a given sonnet by writing an essay.

Write your answer in the space provided.

You can see that because this objective is more generally stated, you have a greater choice in selecting a way to measure the students' accomplishment. Neither the particular sonnet

to be used nor the specific five literary elements to be identified were mentioned in the objective. Still, it would be essential that the students be given a chance to identify at least five of some kind of literary elements in some sort of sonnet. Thus, when goals possess even this small degree of precision, the measuring device is clearly implied.

After deciding on objectives and stating them specifically, the teacher's next step is to develop a test or tests which measure these objectives. Much energy is usually focused on constructing the measuring instrument or test. "Test" here should be

defined very broadly, for instance, a test is any kind of situation where student behavior is observable—not just a paper and pencil examination.

4.
For example, which of the following activities might be used as a *test* of pupil behavior change?

Students
A. answer multiple-choice test item.

B. display courtesy in class discussions.
C. voluntarily participate in extra class activities.

Circle the appropriate letter or letters.

You should have circled all three letters, for each activity might legitimately be used as a measure of pupil behavior change. Aside from the fact that evaluation should be appropriate to the particular objectives to be measured, certain other problems arise in test construction. One area of trouble might be in the selection of the items themselves. For example, in measuring a student's ability to interpret a poem, what would happen if you tested your students by giving them a poem written in a completely obscure style? Undoubtedly, you would get results quite different than if you had chosen a poem constructed in a more conventional way. Most likely, some of your students could have adequately analyzed other poems that were not as difficult or remote from their experiences. Poor test results in this case might simply mean that you chose a poem that didn't permit some of your students to show what they had learned. This is a problem in item selection.

Suppose the poem you happened to choose was an extremely long narrative. In such a case, your students might have to spend most of their time reading the poem itself and would not have the chance to analyze it adequately in the 30-minute time period allotted. You should make sure that your test is measuring what you want to measure—in this case, literary analysis and not speed reading.

This difficulty in item selection can be anticipated and perhaps avoided. One way might be to include several types of poems on the test so that your students will be able to demonstrate analysis of different kinds of examples. If time restricts you to only one poem for analysis with this same objective, try to

make sure that the poem you choose for the test is representative of the kind of poems your students will probably deal with in the future.

5.
What if you have a chemistry class and you can give students either two extended equations to solve or a series of twenty, shorter equations.

A. Two equations
B. Twenty equations

Would A or B be more likely to give your students a fair break?

Circle the appropriate letter.

Generally B is the better choice, that is, giving your students more problems, for in this way they could demonstrate how well they are able to solve equations without incurring the risk that the particular two equations you chose were not representative measures of their abilities. In the same way, representativeness is important when using performance rather than paper and pencil tests.

6.
Which would be a more representative measure of attainment of the following objective?

Objective: Student will be able to prepare a dessert.
A. Student will make a six-layer cake.
B. Student will make a lemon pie, chocolate pudding, and a banana split.

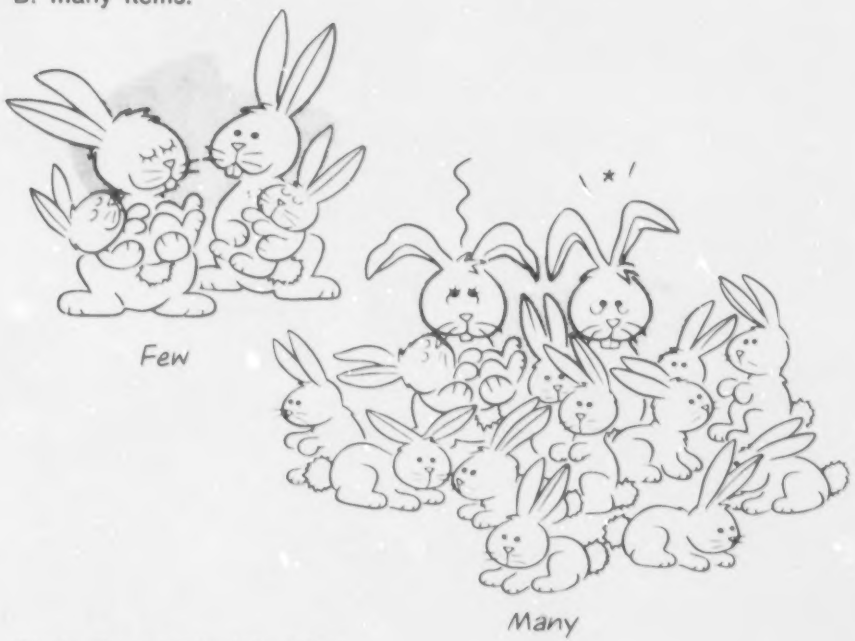
Circle the appropriate letter.

Choice B is the correct answer.

7.

In general, then, how would you recommend that a test be constructed?

A test should have
A. few items.
B. many items.



Circle the appropriate letter.

B is correct. To provide for more representative items, including many questions or problems is more desirable than including just a few.

It is important for you to realize, then, that the actual selection

of items, whether a poem for analysis as in our example or conventional multiple-choice items, is somewhat arbitrary and depends on each individual teacher's predispositions. However, in order to obtain a representative measure of your students' competencies with respect to your instructional objectives, the test items you choose should be as defensible as possible.

This means that you should avoid serious test-construction errors.

8.

For instance, what is wrong with this essay question?

Discuss life.

Write your answer in the space provided.

Of course the question is much too broad.

You might also unwittingly construct your test in such a way that the answer is obvious, as in this example:

Sicily is an
A. island
B. peninsula

Here, the word "an" gives the answer away grammatically. There is no simple generalization which can be stated to help you deal expertly with all test-construction problems. But if you can avoid certain obvious flaws, such as essay questions which are too nebulous or multiple-choice questions which provide unintentional clues to the right answer, you will have more assurance that your test is adequate.

Now suppose you have stated clear objectives and are fairly

confident that your evaluation techniques are appropriate. Next, a particularly crucial step in the process of evaluation must be included. Prior to instruction, students must be pretested with respect to the objectives you plan to teach. Pre-assessment simply means finding out how much the students *already* know

about your objectives. Such pretesting is a safeguard that should enable the teacher to go about his work more efficiently. As a result of pre-assessment, the teacher can discover if his students possess the skills he plans to teach them, or he can find that his students lack certain prerequisites he assumed them to have. Any information of this sort is extremely valuable to the teacher's instructional planning, for as a result of it he may decide to make his objectives more difficult or easier. Most important for the evaluation process, pre-assessment enables the teacher to make a rigorous statement regarding the students' behavior levels before instruction and allows him to attribute subsequent student behavior changes directly to the effects of his instruction.

Since pre-assessment is so critical to evaluation of instruction,

how does one go about it? Good pre-assessment derives directly from the statement of objectives. If your objective was:

Objective: Student will be able to count to twenty.

A reasonable pretest would consist of having students count to twenty. Now consider the following objective.

Objective: Student will be able to reduce fractions.

A good pretest would include some problems in which the student could demonstrate his ability to reduce fractions.

It should be clear that the pretest can consist of the same types of behavior as your post-instruction examination, or even of some of the very same questions you plan to use. Most likely, however, you wouldn't wish to construct a pretest that would take as long or include as many items as a post-test, since experienced teachers come to know what general levels of behavior they can expect from their entering students, and use pre-assessment as a way to verify these assumptions.

9.
For the following objective, briefly describe the sort of pre-assessment you would use.

Student will be able to spell correctly a list of 50 difficult words.

Write your answer in the space provided.

Your pretest should have given students a chance to spell at least some of the words, maybe a sample of ten selected at random. Of course you might have given them all 50 of the words to spell, depending on your time limitations.

10.
What sort of pretest would you give for this next objective?

Student will be able to throw a baseball 25 yards.

Write your answer in the space provided.

Certainly, your pretesting procedures should have included finding out how far your entering students could throw a baseball at the present time.

So far we have been discussing pre-assessment in a very formal way. Each objective is pretested with items similar to those on the post test. In certain cases, such a procedure is neither necessary nor wise. For example, if you were teaching a beginning French course, it would be ludicrous to pretest your students on a lengthy examination treating all of your objectives, for you have a good idea that most of them have never encountered the language before. An informal pretest in such a case might consist of asking students how many have been to France, have French spoken at home, or can speak French. Such a pretest is obviously very brief, but when the probabilities are very low that students can already perform your objectives, it is the most reasonable course to follow. Use informal pretesting techniques, at least as a start. Consider the following objective.

> Students will write a 500-word essay describing three major theses of the Darwinian theory.

The teacher with this objective might involve his students in a discussion of Darwinian theory on the first day of class, and on the basis of their discussion determine their knowledge of the topic. Such a procedure would again be more efficient than

having students write a 500-word essay on a subject they may never have encountered.

11.
Briefly describe an informal pre-assessment technique you could use for the following objective.

Student will be able to explain the relationship of taxes to inflation in a twenty-page term paper.

Write your answer in the space provided.

Somewhere in your pre-assessment you should have found out what your students know about the topic. Probably the most efficient way of doing so would be by a short class discussion. Of the two pre-assessment processes, formal pretesting may be considered to be more thorough than informal pre-assessment, since more concrete information is provided by formal techniques. But pre-assessment in one form or the other must be part of the evaluation process.

Following pre-assessment, the teacher will then attempt to implement a plan of instruction designed to achieve his objectives. Suppose that after instruction you administer the test and obtain results. What should you do after you correct the test papers? To what use can you put the test performance? The last step in evaluation is this: the interpretation of test results.

As a teacher, one of your first thoughts, and rightly so, will be to try to assign grades to the papers. Yet while problems of grading are important, and decisions regarding absolute or relative standards are sometimes difficult to resolve, giving students their grades is only a part of the evaluation process. How can a teacher use test data to evaluate himself as well as his students? How do test results reflect on his own teaching proficiency?

The scores your students get on a particular examination indicate the extent to which they have mastered your objectives. Their mastery, in turn, depends on how well *you* have planned and executed your instruction. Many teachers do not recognize that the accomplishments of their students are a direct index of the teacher's abilities. They may instead view their test results as indicative of the ability level of the class or of the pupils' efforts. Therefore, when test scores are poor, the teacher may blame the class for lack of interest or intelligence, yet in most cases it is really the teacher's fault when students do miserably. There are, of course, alternative explanations for poor test performances. The fault may lie in the level of difficulty of the objectives. The teacher might simply be expecting behavior too advanced for his students.

12.
Assume you have a class of eleventh-grade history in which the

students received an average grade of 50 out of 125 on the first exam. Upon investigation you find that the tenth-grade history program is exceptionally weak. What would be the better course of action next time?

A. Pretest and adjust objectives.
B. Add test items.

Circle the appropriate letter.

Choice A is correct. Pretesting and adjusting your objectives according to student performance is the better solution.

13.
Suppose you gave your Spanish II class a midterm exam and found that all the scores were 90 per cent or higher. What should your interpretation be?

A. Your instruction was effective.
B. You should have pretested to see if your objectives are too easy.

Circle the appropriate letter.

Choice B is better. The students may have already acquired the desired behavior in another class.

14.
Suppose your eighth-grade English class does very poorly on your midterm exam. Through pre-assessment you have discovered the

background of the class to be satisfactory. You have provided adequate test items. How should you interpret these results?

A. The instruction may have been faulty.
B. The class is too slow to master the material.

Circle the appropriate letter.

Alternative A, that your instruction may have been inadequate, is the best interpretation, although not the most pleasant. In any case, careful recollection and reconsideration of your instruction might provide help in determining which areas need to be worked on. Then when you teach the class again, you can incorporate new, hopefully improved, techniques in your teaching. Clearly, a teacher gives himself a chance to improve if he admits that student achievement often mirrors his own skill.

The picture is not always so gloomy. What if you test your students and discover that most of the class *does* perform very well. What do you conclude at this point? Do you immediately congratulate yourself on being an expert teacher?

15.
What if, in your biology class comprised of average students, you are overwhelmed by their high performance on the midterm; the average per cent correct is 95. How can you be sure that your teaching made the difference? Write your answer in the space provided.

If in your answer you suggested that you could take the credit for your students' performance *only* if you pretested them before instruction, then your answer is correct. For you can see

that there is a real possibility that the students had already achieved your objectives before they came to your course.

When you have pretested and discovered that your students could not perform the behavior required in the objectives, and *following* your instruction you test them again and find that they are *now* able to perform as you wished, you can take credit for being a good teacher. And if anyone doubts the quality of your teaching competence, you have objective evidence to prove you have been effective. When your class has done well and achieved your objectives, you might want to relax and continue teaching in the same way, since your methods have been proven successful. Another alternative, and one that will contribute toward your becoming an even better teacher, requires that you reconsider the quality of your original objectives. Perhaps you can make some of them more challenging. Maybe you will want to expect more in general from your students; more stimulating topics might be introduced. When you have explored these possibilities and incorporated into your instruction these new objectives along with your earlier ones, you will then be in a position to say that you have used student performance adequately in the evaluation procedure.

To give you some practice in applying the ideas that have been discussed so far, you will be given information regarding some aspects of the performance of your class. You are to provide interpretations of the test results.

16.
If your class performed at this level, what could you conclude?

The average of correct answers is 23 out of 80; pretesting revealed prerequisites had been mastered.

Write your answer in the space provided.

If, in fact, prerequisites have been mastered, two major alternative explanations exist. One is that the test items you selected were in themselves not representative of the actual achievement of the class, as in the earlier example of the obscure poem; the second possibility is that your instruction and the activities you planned for your class were not adequate to permit the students to achieve the objective.

17.

What does the following situation demonstrate?

After relevant instruction, no one in your physical education class is able to punt a football.

A. Students are not trying as hard as they should.
B. Students may not possess prerequisite skills.

Circle the appropriate letter.

Alternative B is the better choice.

Here the question again must be raised regarding the necessary background of the students. If this task were presented to young children who did not possess the hand-eye coordination required for such a skill, then the reason for poor performance might have been anticipated through pre-assessment procedures. An alternative hypothesis for poor student performance would be inadequate instruction.

From this program you should see that evaluation is much more than merely giving tests or assigning grades to students. Test construction, item selection, and pre-assessment are important parts of the process. Also central to evaluation is the explicit statement and measurement of instructional objectives. When

objectives are first precisely stated and measurement of these objectives is made both before and after instruction, teaching effectiveness can be determined. Concrete evidence of student behavior change enables evaluation of teaching to become a rigorous enterprise. An evidence-based evaluation is a necessary step in improving your instruction.

MAINTAINING RECORDS OF DAILY PROGRESS

by
Thomas M. Skrtic
University of Kansas

In any classroom, especially those that have exceptional learners, it is important to monitor learner progress carefully. In fact, daily progress records should be maintained for each person in the class. This module gives a variety of techniques for maintaining precise and accurate records of the daily progress of learners. Included are descriptions of anecdotal records, permanent products, and observational procedures.

Student Outcomes

Upon completion of this module, the student will be able to demonstrate methods for maintaining precise and accurate records of daily progress for individual learners.

Instructor Information

Prerequisites:

Before beginning this module, the student should be able to write terminal and enabling behavioral objectives, apply appropriate assessment procedures to exceptional learners, analyze learning tasks to determine requisite skills and comprehension, and sequence tasks from simple to complex.

Organization:

The module is designed to be used during student teaching, but it can be used in a methods class. The teaching time will vary. If it is presented in its entirety in a series of sessions, it could take as much as 5 to 8 hours. If it is spread throughout the semester, it could be integrated with other activities thereby reducing the amount of time required.

There are 28 enabling activities for this module, including 6 readings, 6 activities with worksheets, filmstrips, and discussions based on all these. It is possible, and perhaps desirable, to integrate some of the discussion, thus reducing the amount of time spent on the module. All required readings should be placed on reserve for student use in the Education Library. Worksheets are included in the student module.

Content Overview:

The content of this module includes various types of records to be gathered and data to be recorded. It includes:

1. An explanation of permanent products, how and when to collect them.
2. An explanation of anecdotal records, how and when to keep them.

3. Review of respondent and operant behavior.
4. Procedures for graphing observational data.
5. An explanation of precision teaching
6. Review of skill testing.
7. Review of criterion-referenced measurements.
8. Systems for diagnosing specific learning problems.

Suggestions for Teaching:

The activities in this module emphasize strongly the direct and immediate application by the student of the knowledge and skills acquired through readings and discussions. It will be helpful, therefore, for the instructor to complete those worksheets himself/herself in order to anticipate student responses and/or problems. Further, if the module is used in a methods class, it will be helpful to arrange for students to have access to a classroom from which learner products may be obtained, and/or student ability to do record keeping demonstrated.

The first required reading, *Managing Behavior* by R.V. Hall, p. 2, must be done by the students prior to the introduction of the module. More efficient use of instructional time can be made if the second required reading is also done by students before the module is begun.

Evaluation:

There are four formal evaluation activities included in this module, each of which deals with the successful application of one or more of the enabling activities. If summative evaluation for the module is desired the instructor can develop this from the required readings and activities.

MAINTAINING RECORDS OF DAILY PROGRESS

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Prospectus

You will find that an important teacher activity is the monitoring of daily learner progress. Just as it is important to plan individualized instructional programs for exceptional learners that ensure success, so it is equally important to determine the effectiveness of the learning activities with the learner. Monitoring daily progress can be done through a variety of activities, including the collection of learner products, the observation of learners and the recording of observational data, and the keeping of anecdotal records. This module provides you with an explanation of these techniques, and allows you opportunities to practice them in recording daily learner progress.

Student Objectives	Enabling Activities
1. The student can give five examples of permanent products.	1. Reading 1, Hall, p. 2. 2. Class discussion: Students should give examples of permanent products produced by learners during the past week.
2. The student can state three advantages of direct measurement of student permanent products.	1. Reading 1, Hall, p. 2. 2. Class discussion: Instructor asks students to state advantages from Reading 1 and any other advantage (e.g., can be used to verify performance to administrators and parents).

Evaluation: The student can state what is meant by direct measurement of permanent products. Students will describe and give advantages of direct measurement of permanent products in writing.

3. The student can list five features of a well prepared anecdotal record.	1. Reading 2, Pasanella, Section I. 2. Class discussion: Why are these features of an anecdotal record critical? Discuss each feature and its importance.
4. The student can differentiate between an anecdotal record and comments in cumulative folders.	1. Reading 2, Types of Observation, adapted from Pasanella, Section I. 2. Class discussion: Students should explain why traditional anecdotal records in cumulative folders are not really anecdotal records. Stress the time factor. Comments in cumulative folders are usually written at the end of the year. These comments amount to subjective evaluations by the teacher, not actual anecdotal records.

Student Objectives (cont.)	Enabling Activities (cont.)
	3. Class activity: Students copy or adapt the anecdotal record format in Reading 3, (Hall, pp. 7-14) and complete two records on learners in their classes. This may be done for the entire student teaching assignment.

Evaluation: The student can perform one type of observation that does not involve measurement. Activity: Use the anecdotal records completed by students to evaluate this objective.

5. The student can define, provide an example of, and determine the appropriateness of frequency or event recordings.	1. Reading 2, Pasanella, Section I. 2. Class discussion: Review the procedures for each method of observation by asking students to tell when each would be appropriate.
6. The student can define, provide an example of, and determine the appropriateness of duration recording. 7. The student can define, provide an example of, and determine the appropriateness of time sampling. 8. The student can define, provide an example of, and determine the appropriateness of the placheck observation technique.	1. Class activities: Students conduct each of the four types of observations described in Reading 2 and report findings to the group. Show actual collection instruments.

Evaluation: The student can perform four types of observation that involve measurement and select the appropriate type for a specific situation. The activities included for student objectives 5-8 will serve as performance evaluation. Students may continue to use instruments on a continuing basis with results or findings reported back to the instructor or the group.

9. The student can label the axes of the conventional graph and indicate the type of data traditionally designated on each.	1. Reading 3, Hall, p. 8. 2. Class demonstration: Overhead 1 will be shown emphasizing the appropriate labeling of axes. 3. Class activity: Students label axes with respect to the observation data collected in activities corresponding to enabling objectives 5-8.

Evaluation: The student can graph the results of the measurement techniques of permanent products, frequency or event recording, duration recording, time sample recording and placheck recording Task 1. Given graph paper the students graph 1) permanent product performance 2) duration recording 3) time sample, and 4) placheck data they collected under the activities corresponding to enabling activities 5-8.

Student Objectives (cont.)	Enabling Activities (cont.)
10. The student can state five descriptors telling what Precision Teaching is and three descriptors telling what it isn't.	1. View Film Strip entitled "Let's Try Doing Something Else Kind of Thing." 2. Reading: Handout 1. It should be stressed that Precision Teaching is not a teaching or behavior modification method, but simply a measurement system used to increase the efficiency of instruction.
11. The student can perform the rate division method for determining the frequency of a given behavior.	1. Class activity: Compute frequency of the given behavior.
12. The student can explain the function of six-cycle log paper.	1. Class activity: Using Overhead 1, students will explain the function of six-cycle log paper.
13. The student can state application of Precision Teaching to individuals in classroom settings.	1. Reading 4, *Teaching Exceptional Children, 3*, pp. 478-480. 2. Class discussion: Based on Reading 4, students will discuss implications for exceptional children and the importance of charting daily frequencies.

Evaluation: The student can describe Precision Teaching, its purpose, its value, and the specific procedures used to conduct it. Task 2: Student can use filmstrip to study for evaluation. Task 2 can be used in total, or parts of it can be included on any other evaluation.

14. The student can verbalize the underlying measurement principle of criterion-referenced instructional systems.	1. Reading 5, Pasanella 2. Reading 6, Ward, Cartwright and Campbell, pp. 117-118. 3. Class discussion: Students should discuss the difference between the two sets of examples of results of criterion referenced and norm referenced evaluation. Also discuss the uses of CRM as described in Reading 6.
15. The student can list the advantages of criterion-referenced instructional systems.	1. Class discussion: Refer to Reading 5 and the discussion above. Stress the idea of educationally relevant data. Also refer to Reading 6, Ward, pp. 262-267.
16. The student can administer a criterion-referenced pre-test, determine instructional needs, provide appropriate instruction, administer a criterion-referenced post-test and report student gains.	1. Reading 6, Ward, pp. 261-269. 2. Activity: Task 3, Administering a Criterion-Referenced Instructional System.

Evaluation: The student can demonstrate the use of four criterion-referenced instructional systems in the classroom by the successful completion of Task 3.

Required Readings:

1. Hall, R.V., *Managing Behavior*. Kansas City: H&H Enterprises, 1971, p. 2.

2. Pasanella, A.L. and Volkmor, C.B. *Coming Back or Never Leaving*. Columbus, Ohio: Charles B. Merrill, 1977.

3. Hall, R.V., *Managing Behavior*. Kansas City: H&H Enterprises, 1971, pp. 7-14.

4. "Precision Teaching in Perspective: An Interview with Ogden R. Lindsley." *Teaching Exceptional Children*, 3(3), (Spring, 1971), pp. 477-482.

5. Pasanella, A.L. and Volkmor, C.B. *Coming Back or Never Leaving*. Columbus, Ohio: Charles B. Merrill, 1977.

6. Ward, M.E.; Cartwright, G.P.; Cartwright, C.A. and Campbell, J. *The Computer Assisted Instruction Laboratory: Diagnostic Teaching of Preschool and Primary Children*. University Park, PA: 1973.

7. Filmstrip: Council for Exeptional Children. *Let's Try Doing Something Else Kind of Thing–Behavioral Principles and the Exceptional Child*. Reston, Va.: The Council for Exceptional Children.

Recommended Readings:

Precision Teaching

1. Haughton, E. "Great Gains From Small Starts." *Teaching Exceptional Children*, 1971 3(3), pp. 141-146.

2. Kunzelmann, H.P. (Ed.), Cohen, M.A.; Hulten, W.J.; Martin, C.L., and Mingo, A.R. *Precision Teaching: An Initial Training Sequence*. Seattle, Wash.: Special Child Publications, 1970.

3. Starlin, C. "Peers and Precision." *Teaching Exeptional Children*, 1971, 3(3), pp. 129-139.

4. White, O.R. and Haring N.G. *Exceptional Teaching for Exceptional Children: A Multimedia Training Package*. Columbus, Ohio: Charles E. Merrill, 1976.

Criterion-Referenced Instruction–General

5. Drew, C.J.; Freston, C.W.; and Logan, D.R."Criteria and Reference in Evaluation: An Evaluation Model for the Special Education Teacher."*Focus on Exceptional Children*, 1972, 4(1), pp. 1-10.

6. Fremer, J. *Handbook for Conducting Task Analyses and Developing Criterion-referenced Tests of Language Skills*. (P.R. 74-12) Princeton, N.J.: Educational Testing Services, 1974.

7. Gronlund, N.E. *Preparing Criterion-referenced Tests for Classroom Instruction*. New York: Macmillan, 1973.

8. Housden, J.L. and LeGear, L."An Emerging Model: Criterion-referenced Evaluation."In Georgiades, W., and Clark, D.C. (Eds.), *Models for Individualized Instruction*. New York: MSS Information Corporation, 1974.

9. Klein, S., and Kosekoff, J.P. *Determining How Well a Test Measures Your Objectives*. Report No. 94, Center for the Study of Evaluation, Los Angeles, Calif.: U.C.L.A., 1975.

Handout 1

What Precision Teaching Is and Is Not

Precision Teaching Is:

1. a system of measurement
2. a system of daily or continuous measurement
3. a data base for decisions
4. a recording system to measure improvement
5. a method of using data for evaluation

Precision Teaching Is Not:

1. operant conditioning
2. behavior modification
3. a teaching or curricular method

Task 1

Graph Your Observation Data

Task 2

Precision Teaching:

Is

1

2

3

4

5

Is Not

1

2

3

Purpose

Value

Procedures

1.

2.

3.

4.

5.

Task 3

Administering a Criterion Referenced Instructional System

Directions: Choose one of the following four systems and a) administer a pre-test (Note: We do not have the actual items so you'll have to make items to correspond to each step you plan to administer); b) list your students' instructional needs (those items s/he can't do); c) gather or make materials and provide instruction; and d) administer a post-test on the same items (simply check-off those items the student can now perform as a result of your instruction).

1. Fountain Valley Teacher Support System

2. Prescriptive Math Inventory (or Prescriptive Reading Inventory)

3. System FORE (language, reading or math)

4. Multi-Level Examination Kit

Reading 1

from Hall, R.V., *Managing Behavior* Kansas City:
H&H Enterprises, 1971, p. 2

Direct Measurement of Permanent Products

The behaviors of organisms sometimes result in permanent products. These products are tangible things which can be observed and counted. For example, when a student writes answers to math problems, or when a child stacks blocks or strings beads, direct measurements can be made of the products of such behaviors. The direct measurement of products has several advantages which include 1) precise records, 2) permanent records which are usually translatable into numerical terms. 3) products which are often the end result of important academic behaviors.

Precision Teaching in Perspective: An Interview with Ogden R. Lindsley

■ *Precision teaching is a new technique in special education. Ogden R. Lindsley shaped and developed the idea in response to the needs of exceptional children as reported to him by the teachers of these special children. In this interview, conducted by Dr. Duncan, Dr. Lindsley described the origins of precision teaching, the difference between behavior modification and precision teaching, and the present and future implications of precision teaching for special and regular education. Ogden R. Lindsley is Professor of Education at the University of Kansas. He was associated with the Kansas Center for Mental Retardation and Human Development and is now at the School of Education, Lawrence, Kansas.*

Dr. Lindsley, we've heard a great deal about precision teaching, but we would like some answers to some questions, like where did precision teaching come from?

□ First, let me emphasize that precision teaching came about because of children in special education classrooms. If it had not been for these students communicating their needs to their teachers and the teachers sharing ideas with us, we could not have developed precision teaching as beautifully and quickly as we did.

"First let me emphasize that precision teaching came about because of children in special education classrooms. If it had not been for these children communicating their needs to their teachers and the teachers sharing ideas with us, we could not have developed precision teaching as beautifully and quickly as we did."

In 1965, here at the University of Kansas, we decided to see if collecting daily frequency records of students' performance would be useful to classroom teachers. This idea of recording frequency of performance came from learning research. Dr. B. F. Skinner was the person who developed frequency to measure behavior. But Skinner's work was based on laboratory research, and we wanted to see if recording daily frequency would be of any help in monitoring instruction and evaluating curriculum and teaching in special and regular classes.

So in 1965 we started having teachers record students' performances. Our first problem was that it was too much work for most teachers to record 2, 3, or 4 different daily frequencies on each child, especially if they had 12 to 30 students.

Then about 1968 many of our creative teachers began to involve the students in recording. We found that this was the answer to our economic and time problems—having the students record their own behavior. Now our kindergarten and first grade children are recording and charting their daily classroom performances on Standard Behavior Charts. These records of performance are turning out to be very useful in curriculum design, behavior change, and handling discipline problems.

Is precision teaching different from or the same as behavior modification?

The thing they have in common is that the first people to use both originally were trained in the same academic discipline—operant conditioning. This was developed by Fred Skinner at Harvard and Fred Keller at Columbia and some of their associates and students.

The thing that makes them different is that behavior modification stresses the change procedures that were originally used in laboratory operant conditioning.

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It focuses on the use of extrinsic rewards or reinforcement with tokens or candy to bring about change.

Precision teaching on the other hand uses the measurement procedures that operant conditioning originally used but relies more on traditional change procedures that teachers and students invent and select. We're finding in precision teaching that the most effective ways of improving behavior, when we measure behavior frequency, tend to be curricular. They consume less classroom time and don't rely on synthetic rewards or some form of punishment to change behavior. In other words, in precision teaching we try to get the child doing more successful classroom work by making curricular changes which involve him in the learning process, rather than trying to jack up a dull curriculum with rewards for doing boring tasks.

Precision teaching involves daily recording of the frequencies of different classroom performances on a standard chart. This permits teachers and students to project the outcome of the procedures they are using. Standard charts facilitate sharing data.

Behavior modification tends to use procedures like reward and punishment in new and more controlled ways to affect instruction. The child's performance is usually measured by the teacher and does not necessarily include frequencies or the use of a standard chart. In behavior modification, measurement tends to be used to determine whether the reward system was effective or should be altered.

What implications do you think precision techniques have for exceptional children?

If we accept the fact, which most teachers do, that every child is different, then *every* child is exceptional. In the past we've labeled children as exceptional, or we've used specific labels like retarded or learning disabled. These children have dropped out of the bottom of a normal class. The gifted child has popped out of the top of a normal class. Gifted and learning disabled students are retarded by the curriculum assigned them in the average classroom. The gifted child is not stimulated to perform to his ultimate; the retarded child can't perform to the average.

Through individualized planning, we can give every child his own curriculum. In special education this is practically a necessity if we are to help students reach their educational goals and become functioning citizens.

Precision teaching gives the child, the parent, and the teacher a recording technique, a tool to select curriculum materials and involve the child in this selection. This makes it highly probable that you will find a curriculum that will be best for Tommy for October and one for February. If you tried two or three different curricular materials at the same time and made them as different as

possible and involved the child in selecting his materials, you would probably soon find the best curriculum for him. If you try three each day and separately record his improvement on each, within 2 to 3 weeks (or in an extreme case, 4 weeks), both the child and teacher can see which of the curricula he shows the most improvement on and which one he should stay with to gain most educationally. Once you pick the best one, then choose a new curriculum as "insurance." You may find that it is even better. In this way every child can be working on different curriculum materials at a different acceleration, and we can have a constant record for the child and teacher that shows with which set of materials the student improved the most for that month.

Another built-in advantage is that precision teaching gives an ever ready, ongoing report system to the parents. In addition, if teachers share with parents the techniques which succeed in the classroom, parents may be more willing to share home techniques with teachers.

Why is it important to chart daily frequencies of classroom behaviors? Don't children improve anyway?

There are hundreds of ways of improving a child's behavior; every child is unique and different. The problem is not to discover a new universal teaching method. I don't think one will ever be discovered. The problem is to use the excellent teaching methods we already have with the children that they will work best with.

We discovered in our original work that to benefit from Skinner's greatest discovery (the use of frequency as a measure of behavior), frequencies had to be recorded in the classroom. Then we found that we had to make a standard chart, because without guidance and structure daily charting was just too complicated and consumed too much time for most teachers. Most teachers and students made charts as unique as their personalities. When we tried to share those charts in inservice training meetings, we spent all of our time trying to figure out each others' charts.

When teachers made their own charts it took as long as 28 or 30 minutes for a teacher to make her chart clear to the other 20 or 30 teachers. The Standard Behavior Chart increases communication at least 10 times, since it only takes 2 to 3 minutes to share a project.

Also since equal percent gains get equal distance on the standard chart, you can project the future course of behavior by drawing a straight line through the middle of the daily frequencies you've charted. The direction of this line shows whether the frequency of performance is increasing, decreasing, or remaining the same.

The six cycle design of the chart provides an adequate range of behavior. Be-

haviors which occur once a day as well as those which occur as frequently as 1,000 times per minute can be charted. This feature of the standard chart insures that the types of behaviors teachers would tend to measure are not biased by the nature of the chart.

Once teachers learned how to chart, it was clear that teacher- and child-invented change procedures were more fun, more effective, and less expensive than many reinforcement, reward, or punishment procedures that we might advise from a theoretical or academic point of view. It's very clear that what teachers need most is a way of comparing and evaluating the daily effects of the teaching procedures they already know, rather than advice on new ways of changing the behavior of students.

Where do you think precision teaching goes from here?

This is probably the most important question you have asked me. Around 1962 we recognized that future education desperately needed some way to handle unique differences among students. We needed some way to determine which curriculum format fitted which child best. So we set a strategy for the future. Probably one of the biggest advantages in the development of precision teaching is its future orientation.

The funny anachronism that faced us in the 1950's in human learning research was that the method which Skinner had developed to assess general laws of behavior was also the most appropriate one to study individual differences. And those studying individuals were using methods only appropriate for groups. Right now we have a similar problem where the most dynamic, and I think, the most efficient and exciting learning trends and ideas are those coming out of Piaget, Neil Summerhill, and the British Open School. However, the evaluation methods used for these new classroom ideas and theories are ones which *by design* can pick up only similarities and general trends among people. So a payoff area would be to take these highly unique and different types of open classrooms and use precision teaching techniques to monitor the improvement and growth of each child, working on his own custom tailored curriculum program. A beautiful wedding would be that of the best techniques for monitoring the performance of students with the best programs for maximizing dynamic curriculum and individual learning.

Measuring the frequency of behavior was developed to record the *outer* behavior of people. Recently we have been charting *inner* behaviors like success thoughts, anxiety feelings, joy, love, and compassion. How many times a day do you feel compassionate? How many ecology thoughts did you have today? Charting may be one of the few sensitive techniques that we have to keep track of these inner thoughts, feelings, and urges. It could be that precision teaching

"It is essential for creative people to be allowed to make mistakes. Most creative people I have known are different from all the people around them, for they don't know when to quit. For them every failure is a success, because they then know how not to fail that way again."

will ultimately provide man with the most good and the most help by being applied to his inner behaviors. It is one of the few ways to chart and change inner behaviors.

Thus, some future strategies include using precision teaching to monitor students in open dynamic classrooms and letting them chart their own social interaction and self-concepts.

Another use would be to accelerate the ability of students in our regular classrooms who are getting 90 to 100 percent correct every day and are nowhere close to their educational potential. With precision teaching charts we can show that some students have been in school 4 years, received straight A's, and are bored to tears. They have never shown any acceleration or improvement on their charts, which means the school has taught them nothing. They have simply performed at the top of their class. Those students should be put on a curriculum which could allow them to make a high frequency of errors. This may sound strange because we as teachers are generally pleased when our students make few errors. The errors, however, would show that a student is challenged and working towards improvement. In addition, a special curriculum could be selected for a child gifted in math but in nothing else. Then he could stay in his regular school activities, but he could be working on college math because his charts showed that was the only math that was challenging to him.

We can use these charts on daily classroom performance and improvement to design curriculum packages. Each child could possibly have 10 curricular choices. They all could be recorded on the standard charts. No students would ever be reading the same material each week; they would change to the curriculum alternative that they showed the most improvement on.

One problem will have to be solved to make this process work. We will have to learn to treat errors as learning opportunities, as a beautiful man named Caleb Gattegno does. We want to constantly increase the difficulty of the material so that errors are present and can be used not as social stigmata but as *opportunities to learn*. The whole idea is to challenge the myth that children have to be right most of the time, since this idea slows down the learning process terribly. By taking the onus from errors we may find that children dare more and try more.

It is essential for creative people to be allowed to make mistakes. Most creative people I have known are different from all the people around them, for they don't know when to quit. For them every failure is a success, because they then know how not to fail that way again.

Is there anything else you would like to add?

Yes. There's a lot of confusion about precision teaching. People think it's a

new teaching approach, a new type of learning or reinforcement theory. In the past most new ideas about classroom instruction have literally been "approaches" or theories involving goals. *Precision teaching is not an approach;* it is an easy, inexpensive system of monitoring daily improvement—not performance, but improvement. Improvement is acceleration; performance is frequency of occurrence.

The difference is an important one, especially in view of all the talk we're hearing about raising teachers' salaries on the basis of how well the children in their classes perform. For example, if a teacher uses standard achievement tests with a group of children who are good achievers, it's not too difficult to get their performance up to criterion. The teacher can then qualify for a raise based on teaching output, measured by children's achievement test scores. The problem, however, is that if a teacher is assigned children who have great difficulty learning, the teacher would have an awful time getting the children up to criterion before the end of the semester.

"This kind of evaluation would directly reward a teacher for improving the behavior of children, not for trying to get them to reach some standard level of performance. In short, then precision teaching entails recording the acceleration or change in frequency of positive behaviors or the deceleration of negative behaviors, as opposed to simply recording level of performance."

You would have a very different situation if the teacher were being evaluated on the children's improvement or acceleration, that is the *change* or improvement in the frequency with which a particular behavior is performed. Then the teacher who had the most underachieving children would have the greatest opportunity to show pupil improvement. This kind of evaluation would directly reward a teacher for improving the behavior of children, not for trying to get them to reach some standard level of performance. In short then, precision teaching entails recording the acceleration or change in frequency of wanted behaviors or the deceleration of unwanted behaviors, as opposed to simply recording level of performance.

I'd like to again underscore that precision teaching is *not* an approach to classroom instruction. Any teacher who is now comfortable with her style of teaching, her hard learned way of communicating with her students, and the unique way she expresses her love for her students would not substitute precision teaching for what she is doing. She simply *adds* precision teaching techniques to her current style in order to become even more efficient. Precision teaching tools are designed to improve and refine current teaching methods and materials. That's a confusion I find in a lot of teachers. They fear that if they try this new thing they will have to temporarily put aside or abandon their trusted teaching skills. Precision teaching simply adds a more precise measurement instrument to present teaching, making teaching more economical, more effective, more enjoyable, and more loving.

CHAPTER TWENTY-ONE

FOUNTAIN VALLEY TEACHER SUPPORT SYSTEM

The Fountain Valley Teacher Support System (FVTSS) helps teachers to diagnose children's specific learning problems and identify materials for teaching specific academic skills rather than broad concepts. The system was started in response to a need by the teachers in the Fountain Valley School System in California for a quick and precise way to determine whether their pupils had mastered reading skills presented in previous work. For those pupils who had not mastered specific reading skills, the teachers wanted suggestions as to materials which teach the deficient skills.

Working with the teachers and pupils in 16 schools, researchers developed behavioral objectives for 277 different skills presented in reading instruction in grades 1-6. These objectives along with simple tests for each objective and suggested materials for teaching each objective form the basis for the Fountain Valley Teacher Support System.

Components of the System

The FVTSS comes in kit form. The kits are color coded for the various grade levels. Level 1 is red, Level 2 is orange, Level 3 is yellow, etc. Each kit contains a teacher's manual, a series of tests on cassette tape, a series of self-scoring work sheets, a Pupil Progress Profile, and a Teaching Alternatives Supplement.

Teacher's Manual. The first four sections of the teacher's manual contain an introduction to the system. This introduction is helpful in understanding the make-up, rationale and function of the system.

Section 5 of the Teacher's Manual contains the most important information – behavioral objectives for each of the reading skills appropriate for the grade level. For example: For each reading skill appropriate for 1st grade children, Section 5 contains a behavioral objective for determining whether the pupil has mastered that skill. (See page 15-51 in the *FVTSS Teacher's Manual*.)

Each skill that is taught at each grade level has been categorized according to one of the following types:

1. Word analysis
   a. Phonetic analysis
   b. Structural analysis
2. Vocabulary development
3. Comprehension
4. Study skills

Ward, M.E.; Cartwright, G.P.; Cartwright, C.A. and Campbell J. *The Computer Assisted Instruction Laboratory: Diagnostic Teaching of Preschool and Primary Children, Report No. R-54*, University Park, PA: 1973.

Section 5 of the Teacher's Manual follows this categorization. First, all objectives dealing with phonetic analysis are covered, then those dealing with structural analysis and so on. The type of objectives covered on any one page is given at the top right hand corner of the page.

In addition to Section 5 being divided by the type of skills or objectives covered on each page, each type of skill is also subdivided into parts. Each part corresponds to a specific test which checks the mastery of all skills in that part.

Another feature of the Teacher's Manual is that each objective has its own number within each category. The number identifies the grade level of the skill and also indicates the relationship of the skill to other skills.

Pupil Progress Profile. The Pupil Progress Profile is divided into the same categories as the objectives in Section 5 of the Teacher's Manual. (See page 521 in Manual.)

The Profile presents a short-hand version of the content of each skill in the Teacher's Manual. By using the profile, teachers may identify a skill and then use the Teacher's Manual to determine how the skill will be tested. The number in front of each skill on the Profile corresponds with the objective covering that skill in the Teacher's Manual.

Tests on Cassette Tapes. The tests are used to check mastery of the reading skills. All instructions to the pupil are included in the tape, as are all of the questions to which the child must respond. Thus, the main duty of the teacher is to select the proper cassette and provide a cassette recorder. The label on the cassette contains the section title and part number corresponding to those skills it tests.

Self Scoring Work Sheets. Pupils use test answer sheets to respond to the cassette test questions. Each form contains one sample item at the top of the form. In addition, each form is self scoring. (See sample test in Plate 21.1).

Teaching Alternatives Supplement. This supplement allows the teacher to identify specific materials which may be used to reteach skills which are found to be deficient. An example of a child's responses to one of the tests is in Plate 21.2.

Advantages of the System

The FVTSS can help the teacher in two ways. First, it can help him keep a record of what skills were mastered and when the reteaching of deficient skills began. Second, it can help him identify appropriate instructional materials for the reteaching process.

FOUNTAIN VALLEY READING SKILLS EXERCISES

TSS - RED

Phonetic Analysis Part 6

Name _____ Date _____

that	old	shirt

▼1.	start	first	trip
2.	right	green	frog
3.	cars	cross	corners
4.	for	farm	friends
5.	animals	know	when
6.	luck	could	quit
7.	can	chase	cats
8.	with	this	word
9.	take	his	things

★1.	children	cats	sheep
2.	your	them	write
3.	brown	ground	morning
4.	trade	turtle	shirt
5.	from	four	three
6.	then	knew	keen
7.	duck	can	quack
8.	park	cry	grow
9.	think	saw	far

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Plate 211 SIET SCORING WORKSHEET

The student will demonstrate proficiency in WORD ANALYSIS/PHONETIC ANALYSIS by recognizing initial blends and digraphs tr (1-45), gr (1-46), cr (1-47), fr (1-48), ch (1-50), kn (1-51), th (voiced) (1-52), th (unvoiced) (1-53) and phonetic part qu (1-49).

SCORING INSTRUCTIONS	At Each Skill Level
Proceed	-0
Reteach	-1
# of Items	(2)

1.	1-50h	1-50	+	1.	+	1-45	1-45a
2.	1-52	+	1-52	2.	1-46a	+	1-46
3.	1-48	+	1-48	3.	1-47a	+	1-47a
4.	1-45a	1-45a	+	4.	+	1-48a	1-48a
5.	1-49d	1-49a	+	5.	1-51	+	1-51
6.	1-51	+	1-51	6.	+	1-49	1-49
7.	+	1-49	1-49	7.	1-50	+	1-50
8.	1-47	+	1-47a	8.	1-52	+	1-52a
9.	1-53d	1-53i	+	9.	+	1-53	1-53

TSS - RED

FOUNTAIN VALLEY READING SKILLS EXERCISES — Phonetic Analysis Part 6

Name Susan Swade Date September 15, 1973

that old shirt

▼1.	start	first	(trip)	★1.	(children)	cats	sheep
2.	right	(green)	frog	2.	your	(them)	write
3.	(cars)	cross	corners	3.	brown	(ground)	morning
4.	for	farm	(friends)	4.	(trade)	turtle	shirt
5.	animals	(know)	when	5.	(from)	four	three
6.	luck	(could)	~~(quit)~~	6.	then	(knew)	keen
7.	can	(chase)	cats	7.	duck	can	(quack)
8.	with	(this)	word	8.	park	cry	(grow)
9.	(take)	his	things	9.	(think)	saw	far

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Plate 21.2 SUSAN SWADE'S SELF SCORING WORKSHEET

The student will demonstrate proficiency in WORD ANALYSIS/PHONETIC ANALYSIS by recognizing initial blends and digraphs tr (1-45), gr (1-46), cr (1-47), fr (1-48), ch (1-50), kn (1-51), th (voiced) (1-52), th (unvoiced) (1-53) and phonetic part ge (1-49).

SCORING INSTRUCTIONS	At Each Skill Level
Proceed	-0
Reteach	-1
# of Items	(2)

1.	1-50h	1-50	+	1.	+	1-45	1-45a
2.	1-52	+	1-52	2.	1-46a	+	1-46
3.	1-48	+	1-48	3.	1-47a	+	1-47
4.	1-45a	1-45a	+	4.	+	1-48a	1-48a
5.	1-48d	1-48a	+	5.	1-51	+	1-51
6.	1-51	+	1-51	6.	~~+~~	1-49	1-49
7.	+	1-49	1-49	7.	1-50	+	1-50
8.	1-47	+	1-47a	8.	1-53	+	1-52a
9.	1-53d	1-53t	+	9.	+	1-53	1-53

RT 66

The FVTSS can also help the teacher identify instructional materials to help reteach deficient skills. The component of the system which allows him to identify appropriate materials is the Teaching Alternatives Supplement.

Using the System

The purpose of the FVTSS is to help teachers diagnose reading problems and identify instructional materials to be used in reteaching deficient skills. If two or more pupils are deficient in the same skills, these common deficiencies could form the basis for group work on the remediation of the skills.

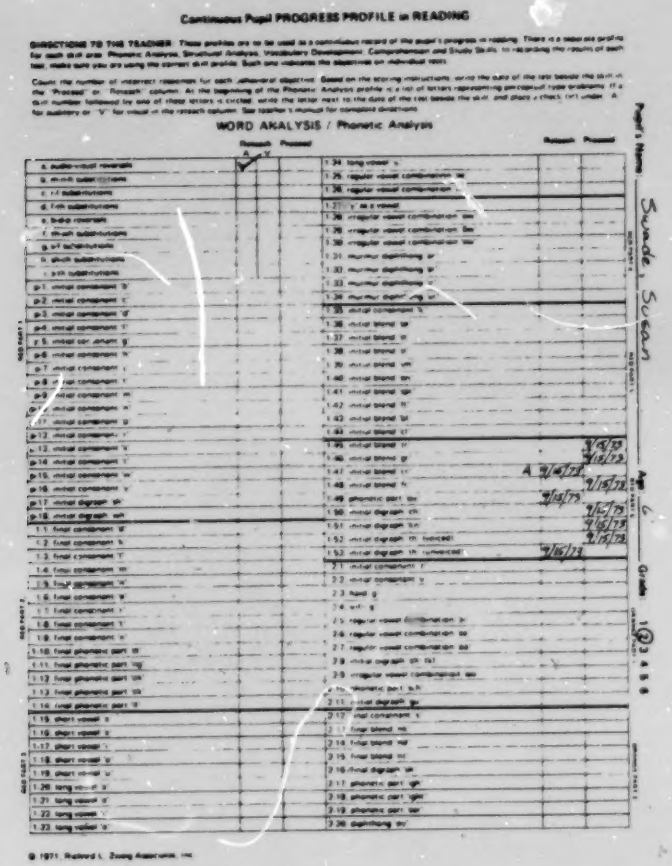
In most classes, especially those using individualized reading approaches, there are some pupils who read far better than average and those who read far worse than average. In other words, there may be a great range of reading abilities within a class. The teacher may have to have FVTSS kits at more than one level if he is to adequately meet the reading needs of his pupils.

To use the system, the teacher first tests one or more children by means of the cassettes and self scoring tests. The cassette tape administration helps standardize the testing situation. Children listen to the taped directions and respond to questions by marking the test forms. The teacher then examines the back of the self-scoring test form to see which items (objectives) a given child missed. The items are keyed to objectives in the Teacher's Manual and in the Teaching Alternatives Supplement (TAS). Thus the teacher can easily find out which specific skills the child needs practice on and by means of the TAS can find the exact page in various reading series on which that particular skill's taught.

Future Plans

Currently under construction is a FVTSS in arithmetic. Questions about either the reading or arithmetic system should be directed to:

Richard L. Zweig Associates, Inc.
20800 Beach Boulevard
Huntington Beach, California 92648


Continuous Pupil PROGRESS PROFILE in READING

WORD AKALYSIS / Phonetic Analysis

Plate 21.3 PUPIL PROGRESS PROFILE

Summary

1. The Fountain Valley program helps teachers diagnose children's specific learning problems and identify materials for teaching specific skills.
2. The system contains behavioral objectives for 277 different reading skills for grades 1 – 6.
3. In kit form, the components of the Fountain Valley system include a teacher's manual, a series of tests on cassette tape, a series of self-scoring work sheets, a Pupil Progress Profile, and a Teaching Alternatives Supplement.

REPORTING LEARNER PROGRESS TO PARENTS

by
Joel Colbert
University of Kansas

A major task in working with learners who have special educational needs is reporting their progress to parents and others in a way that is comprehensible and educationally sound. One of the biggest problems in meeting this task lies in the use of letter grades as the sole indicator of learner progress. Learners who have special learning problems often find themselves penalized for progress by being compared only with peers in the determination of their rating on the regular progress report. Increasingly, parents of exceptional children and educators are questioning the use of the traditional grading system as the only means of reporting learner progress. This module presents preservice teachers with several alternatives for grading, and presents the pros and cons of each.

Student Outcomes

Upon completion of this module, the student will be able to plan reports of the progress of exceptional learners for the learners and their parents.

Instructor Information

Prerequisites:

Before this module is introduced to students, they should be able to describe the developmental characteristics of exceptional and normal learners, demonstrate their ability to use appropriate assessment procedures, plan and deliver individualized instructional programs in all curriculum areas, and use a variety of techniques in recording the daily progress of exceptional learners.

Organization:

The teaching time of this module is three to five hours. It is organized into five required readings, three class discussions, and two activities. The final activity, planning a reporting system that can be used in a classroom that has exceptional learners, integrates the information from the readings and discussions. It should be noted that there are more required readings for this module than for many of the others. Although all the information contained in the readings is considered to be important for students as they develop their ability to plan progress reports, some may be deleted at the instructor's discretion. The instructor may, for example, prefer to relay some of this information in the class discussions or through lectures.

Content Overview:

To help students understand the bases for various types of reporting systems, the content in the module includes:

1. Grading based on ability.
2. Dual marking systems: grading in terms of grade standards *and* in terms of individual learner ability.
3. Written evaluation reports.
4. Principles to be used in setting up reporting systems.
5. Promotion and non-promotion policies.
6. Pros and cons of using grades.
7. Advantages and disadvantages of marks and marking systems.
8. Normative and criterion-referenced grading.
9. Selection and evaluation of report cards.

Suggestions for Teaching:

The first reading, "Improving Evaluation and Reporting of Pupil Progress and Promotion" by Thomas and Crescimbeni, should be assigned to students before the module is begun.

The instructor will want to read the instructions for the "Group Activity for Selecting and Evaluating Report Cards" given in Student Objective 4, Activity 1, p. 168, since this activity integrates the knowledge and skills acquired by students in this module and requires them to demonstrate their competence in deciding on reporting systems. It is possible, of course, to use this activity as it is presented, that is, as an individual activity. The instructor should decide this in advance, since this module is set up for the group activities described on p. 168 of the activity.

Evaluation:

The final activity provides the instructor with the feedback necessary to determine whether or not the students can demonstrate the competency dealt with in this module.

REPORTING LEARNER PROGRESS TO PARENTS

by
Joel Colbert
University of Kansas

Prospectus

A major task in working with learners who have special educational needs is reporting their progress to parents and others in a way that is comprehensible and educationally sound. One of the biggest problems in meeting this task lies in the use of letter grades as the sole indicator of learner progress. Learners who have special learning problems often find themselves penalized for progress by being compared only with peers in the determination of their rating on the regular progress report. Increasingly, parents of exceptional children and educators are questioning the use of the traditional grading system as the only means of reporting learner progress. This module presents you with several alternatives for grading, and presents the pros and cons of each. You will also be given the opportunity to evaluate and select a grading system that can be used in a school and/or classroom.

Student Objectives	Enabling Activities
1. The student will be able to describe three approaches to grading.	1. Reading 1, Thomas and Crescimbeni, pp. 133-160. 2. Class discussion: The pros and cons of the three approaches.
2. The student will be able to discuss problems with the "single letter grade" approach.	1. Reading 2, Ebel, pp. 1-5. 2. Reading 3, Thorndike, pp. 759-766. (On reserve in Education Library) 3. Class discussion: Are grades necessary? What are the alternatives? What are the problems involved with alternative grading practices?
3. The student will be able to define norm and criterion referenced evaluation.	1. Reading 4, Glasnapp and Poggio, pp. 20-24. 2. Class discussion: The advantages and disadvantages of norm and criterion referenced grading.
4. The student will evaluate four different approaches to reporting procedures.	1. Reading 5, "Activity for Selecting and Evaluating Report Cards," York, pp. 121-135. 2. Activity 1: "Activity for Selecting and Evaluating Report Cards," York pp. 136-168. See instructions for (1) on p. 168.

Student Objectives (cont.)	Enabling Activities (cont.)
5. The student will select a reporting system for a school/classroom.	1. Activity 2: "Activity for Selecting and Evaluating Report Cards," York, pp. 136-168. See instructions for (2) on p. 168.

Readings

1. Thomas, G.I. and Crescimbeni, J. *Individualizing Instruction in the Elementary School*. New York: Random House, 1967, pp. 133-160.

2. Ebel, R.L. "Shall We Get Rid of Grades?" *Measurement in Education*, 1974, *5*(4), pp. 1-5.

3. Thorndike, R.L. "Marks and Marking Systems." In R.L. Ebel, ed., *Encyclopedia of Educational Research*, 4th ed., New York: MacMillan Co., 1969, pp. 759-766.

4. Glasnapp, D.R., and Poggio, J.P. "Classroom Evaluation and Grading: Norm-referenced or Criterion-referenced?" *Kansas Studies in Education*, 1971, pp. 20-24.

5. York, L.J. "Activity for Selecting and Evaluating Report Cards." In York, L.J. *Evaluation of Team Teaching and Children's Continuous Progress*. Austin: The University of Texas, 1969, pp. 121-135.

Activities

1. York, L.J. "Activity for Selecting and Evaluating Report Cards." In L.J. York, *Evaluation of Team Teaching and Children's Continuous Progress*. Austin: The University of Texas, 1969.

Optional Readings:

1. Glasser, W. *Schools without Failure*. New York: Harper and Row, 1969.

2. Marshall, M.S. *Teaching without Grades*. Corvallis: Oregon State University Press, 1968.

3. Kirshenbaum H.; Napier, R.; and Simon, S. *Wad-ja-get? The Grading Game in American Education*. New York, Hart Publishing Co., Inc., 1971.

CHAPTER 6

Improving Evaluation and Reporting of Pupil Progress and Promotion

Many teachers can evaluate the work or accomplishment of their children, but the problem is how to report their findings in an acceptable language to parents, other educators, and to the pupils themselves. Finding the right words or the right form to communicate to others is a problem for many teachers. If they could just eliminate the "mystery man of the report card," life would be so much easier for teacher and learner. However, this is not possible since other educators, parents, and employers want to know what individual pupils have done *in terms of grade standards or in terms of actual pupil potential*. Evaluation and reporting in terms of rigid grade standards can be easy if one ignores factors of ability, previous background, interest, and the availability of suitable teaching materials. If this is all that is wanted, some first-grade teachers can predict the kind of marks some of their children will obtain several years from now. However, parents and teachers find it helps to know more than mere achievement in terms of a set standard.

If a new school administrator wants to stir up excitement in his community, one of the easiest approaches is to suddenly try to change reporting procedures. No matter what method of evaluation and reporting is used, one will always find *someone* objecting to it. Many administrators have lost their positions when they attempted to introduce a radical improvement in reporting procedures. While compromises are frequently made, many educators continue to dream

about the perfect report card, one which will be simple to make out, easy to interpret, and which will tell everyone, including the pupil, where the student is or has been in terms of multiple standards of achievement or accomplishment.

Developing Effective Measures

In various communities, reporting practices vary from a planned parent-teacher conference to a written or anecdotal report, along with one of a varied assortment of printed report cards. These may show progress via letters, numbers, descriptive pictures, and descriptive words and phrases. The majority of the report forms will tell the parent one thing, namely, how Johnny or Mary seems to be working in prescribed subject areas. Usually, procedure calls for a report of pupil progress in terms of so-called *achievement level* or *standard*, although teachers' interpretations of what that standard is will vary in terms of their own interests, abilities, and backgrounds.

The code for marking pupil progress or achievement may be simple or complex, but over a period of time pressures will be exerted to either give additional information or simplify the reporting procedure. Many parents are not satisfied with newer types of report cards, but by the same token they are not satisfied with a simple S and U report or the traditional A, B, C, D, and F. Some want to know if a B is a high B or a low B. Is the mark of D actually a low D or a high D? Does it mean that he is almost failing, or is he almost doing satisfactory work? Again, does the B mean that the pupil is just better than average, or is he almost superior? If the school is marking pupils in terms of ability, parents may want to know if the B means that a pupil is working almost up to capacity, but then if the answer is "Yes," they want to know where the pupil ranks in terms of other pupils in his class or in terms of national standards. Is his work as good as or better than the average work done in the class, grade, or school? If better, how much better?

REPORT CARDS BASED ON GRADE STANDARDS STILL POPULAR

Most parents understand report cards which indicate pupil progress through the use of a five-point scale, so many of them resist a change in reporting procedures. Generally, they want to see a reporting system which tells how their son or daughter is working in terms of the *accomplishments of other children*. This creates a conflict since many parents are also interested in seeing an individual's growth in terms of

From INDIVIDUALIZING INSTRUCTION IN THE ELEMENTARY SCHOOL, by George I. Thomas and Joseph Crescimbeni, Copyright © 1967 by Random House, Inc. Reprinted by permission of Random

his own ability or in terms of past accomplishment. Therefore, one can find some dual progress reports in use, but these tend to be complex evaluating instruments difficult to make out and to interpret. The average parent tends to think in terms of grade standards and wants a progress report which indicates growth or progress in terms of these grade standards. If a pupil receives a mark of B, many parents think he is making pretty good progress. With a bit of effort, special help, or even luck, this pupil may climb to the top of the educational ladder. A mark of A or its equivalent will stand for quality or perfection. The recipient of such a mark will be considered superior to pupils receiving lower level marks. This can be very flattering to the ego of the parents who delight in telling their neighbors, "Mary received an A in *arithmetic.*" Actually, they may be saying indirectly, "Look at what we created. We have a young genius in the family." In contrast, a poor report card can be a blow to parental pride. The parents of many a bright pupil often favor the *grade standard* report because it almost guarantees them high marks for their children, whereas a report card based upon *ability* may show that the individual is not working up to levels commensurate with his potential.

Since many parents derive personal satisfaction in seeing a pupil's progress in terms of grade standards, it is not easy to dispense with the formal type of reporting. However, one can find educators resorting to a variety of approaches to tell parents what they want to know. A popular method of reporting calls for the replacement of letter grades with numbers or percentages, but this poses problems because so much of a teacher's evaluation is subjective that it is difficult to see differences in marks like 78, 79, 80, and 81. Such marking results in many inconsistencies on the part of teachers and between teachers due to the lack of objective instruments upon which to *base* a grade. Some parents favor this type of marking, but many teachers are unhappy when they have to give children grades which they do not understand or perhaps cannot do anything about. This is particularly true where children are subjected to strong home pressures because neighboring children or a sibling received higher marks. Some communities use word symbols to tell the same story, with the teacher or the office maintaining a numerical grade for the given symbol or word description.

The emphasis upon grade standard marks helps educators to segregate slower learning pupils from average or above-average students before they reach high school, so they are not usually placed in classes considered college preparatory; however, many of the students who have a long history of poor marks due to lack of effort or ability find it difficult to get satisfaction from their school work. And after years of wearing the label of "slow learner" or "failing student," it is hard to

convince them that they cannot do better in the outside world. While marks are not the basic cause for all early dropouts, the competitiveness in our schools has helped create situations that have led to unhappiness with schools and schooling.

Teachers are considered "softies" because they give some slow children higher marks than they deserve under the grade standard concept, but teachers who live closely with and for their children all day long see intangibles, other than mere achievement, which influence their actions. It is often difficult to fail the slow-learning child who sits there trying to please the teacher or to do something which will result in parental approval. He has no time for free reading, drawing, or free conversation, because his work occupies his attention hour after hour. Giving such pupils a passing or acceptable mark on the basis of effort expended is quite different from rewarding pupils who make no effort to achieve on a satisfactory plane.

MARKS BASED UPON ABILITY GROWING IN FAVOR

Teachers frequently oppose the practice of giving grade standard marks, because the marks penalize the slow learner who is working at capacity levels. Moreover, the practice encourages the awarding of high grades to bright pupils who do not have to exert themselves to obtain them. As a result, some schools substitute a form of ability marking for grade standard marks. Theoretically, ability marking has its place, but one can find dissatisfaction with such marking because of the absence of a standard unit of comparison. Normally, children compete to obtain marks, but the competitive element is lost with ability marking. Parents object when they cannot discover how a pupil ranks in his class, because a slow learner who works steadily and is reportedly trying hard receives an A for achieving less than the bright pupil who receives a C because he did not really exert himself. In theory, this can happen for the brilliant student who merely does what he is asked to do. In terms of grade standard assignments he can do the same work as slow learners and average learners do, but without working as long or as hard. In many instances, his work may be more accurate and may show better understanding, but he is ineligible for a higher grade unless he extends himself by doing more than the minimum. Actually, in practice, few teachers give low or failure marks to their best students even when they are not working up to their capacity. Parents and teachers still find it difficult to label pupils who are doing the best work at elementary grade levels with any kind of tag which may be considered degrading even though the students may not struggle as hard to complete assignments as slower learning pupils. In some schools, teachers agree that no pupil in a top section or honors class will receive marks lower than a B equivalent.

TABLE 1
Sample Marking Codes Used on Report Cards

Sample 1

E	Excellent progress
S	Satisfactory progress
SA	Satisfactory progress at ability level
N	Needs improvement
U	Unsatisfactory progress

Sample 2

Needs much improvement
Shows marked development
Shows satisfactory growth

Sample 3

E	Outstanding growth, pupil doing strong work
S	Usual growth and satisfactory work at grade level
N	Improvement needed to attain grade level
✓	Extra work and effort desirable
X	Oral explanation to the parent desirable
SP	Satisfactory growth or progress—see teacher comment

Sample 4

A+	Excellent	96 to 100
A	Fine	91 to 95
B+	Good	86 to 90
B		82 to 85
C+	Fair	77 to 81
C		73 to 76
D	Unsatisfactory	70 to 72
E	Very poor	60 to 69
F	Failure	below 60
Passing grade		70

Sample 5

Rapid progress
Good progress
Satisfactory progress
Slow progress
Unsatisfactory progress (failing)

Sample 6

E	Outstanding achievement
S	Above average achievement
M	Average achievement
T	Trying but below grade standard
U	Unsatisfactory achievement (Consistently unsatisfactory achievement may be regarded as failure.)

Sample 7

S Satisfactory progress
U Unsatisfactory progress

Sample 8

Note: Three times a year the pupil receives a report indicating how well he is working up to his ability. Twice a year he is given a report based on standards of achievement for his grade.

(Ratings on report of progress)
1 Progress up to ability
2 Has ability to do better
3 Progress much below ability

(Ratings on report of achievement)
A Much above average
B Above average
C Average
D Below average
E Much below average

Sample 9

Capable of doing better
Finds work difficult
Shows satisfactory progress
Shows high quality work

Sample 10

Shows improvement
Satisfactory progress
Needs improvement

226

Ability marking has come to the foreground because teachers have been resisting the practice of giving the slow-learning pupil low or failing marks throughout his school career regardless of how he tries! No matter how such pupils work or try to comply with teacher requests, it is virtually impossible to reward them with a good or even passable mark if grade standards dictate the nature of a pupil's rating. Each year thousands of boys and girls give up or have the inclination to do so, because they are unable to live up to parent or teacher expectations. In class after class they begin assignments with other children, but they are still working at them when others have finished, or they find that they are not able to give the teacher the answers she expects. They repeatedly fail to meet prescribed educational goals because of their backgrounds. Many of these children begin to find frustration at the lowest grade levels, and by the time they reach the intermediate grade level, schooling no longer appeals to them. By junior high school some of them are already waiting for the day when they can join the ranks of the early dropouts.

Evaluations Based on Ability Hard to Defend. Regardless of whether a school is evaluating children in terms of ability or of a grade standard, one will find teachers stating or implying that a given pupil is not working up to his ability. Thousands of teachers have been guilty of the cliché, "Charles could do much better." While these teachers may be correct in making such an assumption, many of them would be hard pressed to defend it. Some teachers may have evidence to support their statements, but others are skating on thin ice when they refer to a child's potential. Studies have shown that many teachers do not know the true potential of given children! Teachers will frequently make reference to a *single* intelligence test score, in itself hardly sufficient evidence of a pupil's true potential. (It has been pointed out that the standard error of measure alone may throw a pupil into different classifications of learners when a second test is given.) When referring to ability, the teacher must consider a pupil's social and economic background, because studies show that pupils from low socioeconomic backgrounds have to overcome obstacles to learning that children from more favorable home environments never face. Ability (in such instances) is not easy to determine, and if actually measured, is no guarantee that the individual can work to capacity unless the school provides a rich and broadening program to compensate for what he misses at home.

It is often difficult to determine the basis for ability marks or comments which may be made to parents concerning a given pupil's potential since teacher evaluations are influenced by many factors. Carter, [2] for example, reports several studies which indicate that girls are inclined to receive higher marks than boys. Studies of class

227

rank in most schools will show that the number of boys in the top 10 per cent of a given class is smaller than girls in spite of comparable ability. One reason for the disparity in the teacher ratings of boys and girls who do comparable work is because boys tend to be nonconformists in many ways. As a result, they are not regarded favorably by many teachers. Other studies have revealed a tendency by women teachers to give higher marks than men teachers, even in a school system where ability marking is the practice. Boys and girls may not like to be labeled as "teacher's pet," but it does pay off. Teachers tend to give higher marks to pupils they *favor* than to pupils they do not like, despite the fact that the latter pupils may be achieving on a higher plane than the pupils who are in the good graces of the teacher.

It is often difficult to compare teacher ratings of the same individual since they may not use the same evidence to substantiate their evaluation. It is almost impossible to explain teachers' thinking processes. This subjectiveness is often tempered at different grade levels by the difference in emphasis placed on pupil marks. For example, primary grade teachers tend to place less emphasis upon marks than upper grade and secondary school teachers. Thus a difference in educational philosophy, as well as in training and experience, may influence the nature of a pupil's rating as he goes from teacher to teacher. Often, due to emotional barriers, the necessary rapport is never established between the teacher and given students, and this leads the teacher to underestimate what these pupils can do or have accomplished.

Many teachers make the mistake of using the intelligence quotient (IQ) to classify children. Actually, they should be using the mental age (MA), since two children with the same intelligence quotient may not be at the same learning level. Teachers should also remember that chronological age (CA) can affect performance. If one pupil is young and the other overaged, their rates of growth or accomplishment will not be the same even though they have the same intelligence. Thus, a boy who is 7-10 chronologically may have a mental age of 8-3, whereas the boy with a mental age of 9-3 may be 8-10 chronologically, yet both pupils have an IQ of approximately 105. One can expect more of the pupil with a mental age of 9 years and 3 months than one can expect of the pupil with a mental age of 8 years and 3 months. Translated into terms of expectancy levels, the younger pupil may be capable of doing high-level second-grade or low-level third-grade work, while the older pupil may be capable of doing high-level third-grade work or low-level fourth-grade work.

It should be emphasized that reliance on an IQ test is based on the assumption that the test was administered properly and scored correctly. In addition, it must be assumed that the two pupils were in top

form when they took the test, that they understood the directions, and actually tried to do their best. It must also be assumed that the tests actually measured intelligence and not reading ability or prior experience.

One may ask why a pupil is still in the second grade when he is old enough to be in the third grade, particularly since he has the potential that calls for success with third-grade work. Conceivably, such a pupil may have a long history of illness or a social or an emotional background that makes it essential that he remain with younger children because they give him a greater feeling of security. Again, if the pupil's class performance is low, it may be advisable to recheck his intelligence, since gross discrepancies between potential and achievement can point to future trouble. A second test may indicate a lower actual potential. Should this be true, the teacher who marks upon ability may find it desirable to reevaluate the ratings given earlier and then readjust them in terms of the new estimate of the pupil's intelligence (ability).

Reporting pupil progress in terms of ability is sometimes based upon a bit of subterfuge. In some communities, parents receive ratings based upon *apparent* ability, but the office records require grades showing pupil rank in class based upon grade standards.

Parental Dissatisfaction with Ability Marking of Superior Students. Parents of slow-learning children find satisfaction in ability marks since their children are not as conspicuously identified. Here, the ego of both parent and pupil is uplifted by the marking system. Accomplishment, no matter how slight, is recognized by the teacher, and the learner does not have to dread termination of a marking period. While average pupils stand to benefit from ability marking, ambitious parents soon begin to show their dissatisfaction. Traxler [8] reports that parents tend to be critical of marks based on ability alone. They want to see how their children rank in class!

Other educators have also found this true, so they have tried to develop a reporting system which would not be competitive, but which, instead, would recognize ability and effort and yet appease the parents. They have found that such comments as "Satisfactory" or "Is making fine progress for his ability" are not specific enough. Parents want to know more. A typical parental comment will be, "I know that Jane is working to capacity, but what does it mean? Has she learned to read as well as her friends? Does an A or Good Progress mean that she is an excellent student academically, or does it mean that she is an average student academically who has learned to conform?" Another parent will ask, "Can Oliver get into high school or college with these marks? Is he really an A or B student in terms of academic accomplishment? He does not do very satisfactory work at home, so we cannot see

how he can rate so high unless the school is failing to challenge children."

Ambitious parents want to know whether their children are doing better than other boys and girls in a given class, grade, or subject. A rating of B or C becomes meaningless to the parent when he discovers that the favorite son ranks at the bottom of the reading, arithmetic, or social studies classes in terms of *actual* achievement.

USE OF DUAL MARKING SYSTEMS

Some educators have tried to meet teacher and parent interests in pupil evaluation by the development of a new, but complex, dual marking system. The new report card attempts to tell parents where a pupil stands in relation both to his own ability and to other pupils in the class. In evaluating pupil progress, the teacher attempts to give the pupil two ratings. Here, a typical report card calls for a set of marks in a column set aside for an evaluation based upon the *individual's ability* or *potential*. A second column or coding provides for a rating based upon *actual achievement in terms of established standards*. Although the authors favor this system of reporting, the fact remains that it does create problems because (1) it is too complex for many parents to read accurately and with understanding; and (2) it is too difficult for many teachers to complete with a high degree of consistency and reliability.

So many factors have to be considered in the evaluation process that, after the outstanding pupils and the poorest pupils have been graded, it is most difficult to grade the middle group of children in a class without feeling that some factor has been overlooked. A dual marking system merely compounds the teacher's problems because she now has to be consistent in what she *says* regarding ability and achievement in various subjects and from one marking period to another. If she uses a coding or descriptive words, she has to make every effort to ensure that it says what she wants to say.

To ensure that teachers and parents understand each other, some school administrators have teacher-parent meetings to explain the philosophy underlying the dual marking system and the terms used. Written directions or explanations are often developed to guide teachers in the evaluation of children and to help parents interpret the dual coding that is used to inform them about the ability and achievement of their children. Actually, this type of reporting can be most fruitful if parent-teacher conferences are held to review the report card ratings, but if this is done, the educators may consider the advisability of substituting a planned series of parent conferences in place of the formal report card.

Identifying Under- and Overachievers with Dual Marking System. When the *underachievers* and the so-called *overachievers* have been discovered, the teacher is in a position to take a more positive approach as she plans new activities based upon her observations and knowledge about individual children. If she finds individual pupils who are not working anywhere near expectation levels, she may revamp her approach for these children in hopes that she can identify the reasons for their low achievement. She may have to retest some pupils to verify reported intelligence or achievement levels. In other cases, she may find that interest and cultural factors help account for discrepancies between pupil performance and actual accomplishment in class.

The dual marking system may result in a diminishing of the pressures upon average and less-than-average children, but at the same time bright children may find that they have to exert themselves if they are to meet teacher and parent expectations in terms of their potential. However, these bright children must be exposed to a program that allows them to progress at their own rates of speed. A teacher cannot fairly rate a bright pupil *low* in arithmetic achievement if he does all that he is asked to do but is never introduced to higher level arithmetic skills and concepts. She has to place him in a learning situation which will allow him to work at advanced levels if he is to work close to expectation levels for his high intellectual ability.

Reports show that the dual marking system has been a boon to school administrators because teacher marks tend to be more consistent, since teachers have to study the principles of evaluating children in greater detail if they are to work effectively with the more complex and more professional approach in marking or grading the progress of individual children.

ILLUSTRATIONS:

Teachers in one school system use a standard report card with two columns for the rating of children at the end of each marking period. Each pupil is rated twice for each subject. In the first column the pupil is rated in terms of grade standards. He is rated again with the same letters or code symbols in the second column, but this time his progress is evaluated in terms of his actual expected performance for his mental age.

Teachers in another school evaluate each pupil's relative achievement in subject matter in terms of his ability through a combination of letter and number grades. At the start of the school year the teacher, through observation and study of the pupil's test records, classifies him in terms of expected and/or permissible alternate performance levels for his IQ. The IQ, or ratio of mental age (MA) to average chronological age (CA) for the grade level, gives the pupil's ability for the work in basic subject fields.

In one school the pupil's ability rating is listed on the report card in a

conspicuous place so the parent knows that the child falls into a given ability range. All marks or codes are based upon this designated classification of the pupil's potential.

Generally, if a pupil does work appropriate for his *ability* level, he receives a mark of S followed by a 1-2-3-4 which designates the *performance* level. If the pupil *fails* to work up to his ability level, he receives a mark of U followed by a 1-2-3-4 to show his actual performance level. In other words, a bright pupil who fails to make a sufficient effort would receive the paradoxical-seeming mark of U-3 or U-4. Teachers base their ratings upon a guide sheet that sets forth definitions for various performance levels.

TABLE 2
Establishing Ability Levels for Pupils

Indicated Ability (For fundamental subjects)	*Intelligence Quotient or Ratio of MA to Average CA for Grade Level*	*Performance Ranges or Expectation Levels*	
		PROBABLE	ACCEPTABLE OR OCCASIONAL ALTERNATE*
A	140 and above	1	2
B	139–128	2	1
	127–110	2	3
C	109–97	3	2
	96–85	3	4
D	84 or below	4	3

* Dependent upon circumstances, i.e., instructional facilities, special pupil aptitude or interest, etc.

Note: Teachers may use a few points higher or lower in determining expected performance levels if in their judgment the ratings are too high or too low.

Performance Ranges or Expectation Levels. The following is a detailed guide to the code system used in Table 2.

1—Generally fast working speed. For 11- to 14-year-olds, ranging approximately more than two years above average grade level in fundamental school work accomplishment (doing about as well as many children who are more than two years older would do on the same or similar subject material). For the 9- to 10-year-olds, the range of performance would be two or more years above. For the 6- to 8-year-olds, this range would be more than one year advanced. In some subject areas and in some classes there would be no youngsters working at this level. In other classes there might be two or four youngsters who would maintain performance at this level in certain subject areas.

2—Medium to medium-fast working speed. For 11- to 14-year-olds, ranging from approximate grade level to one and two years above average age-grade levels for the subject (doing about as well as many children of the same age, and often as well as those who are one or even

two years older would do on the same or similar subject material). For the 9- to 10-year-olds, performance would range from average to above-average. Twelve to fifteen youngsters in a class of thirty pupils can be expected to perform at this level in a subject.

3—Medium to slow working speed. For 11- to 14-year-olds, ranging from approximate grade level down to one or two years below average age-grade level accomplishment in the subject (doing about as well as many children one or even two years younger would do on the same or similar subject material). For the 9- to 10-year-olds, the performance would range from average down to one or occasionally to two years below average. Approximately fourteen to twenty youngsters would maintain performance in a subject at this level.

4—Slow working speed. For the 11- to 14-year-olds, ranging from more than two years below average age-grade level accomplishment for the subject (doing about as well as many children would do who are two or more years younger). For the 9- to 10-year-olds, the performance would range two or more years below. For the 6- to 8-year-olds, the performance would range more than one year below. Approximately four to ten pupils would maintain performance at this level.

Under this system of marking, instruction is essentially instruction of groups within each classroom. The teachers are not expected to bring all children up to a fixed grade standard. Provisions are made to teach each pupil at the level where he can achieve the greatest amount of growth in terms of his potential.

Evaluating Children Assigned to Homogeneous or Honors Classes. A dual progress marking system lends itself to the evaluation of children in homogeneous or "honors" classes. However, where ability is not used in the evaluative process, teachers may have problems when they mark papers or report cards. Should children in low class sections receive marks extending from the highest possible to the lowest possible mark? Should children in the top class section receive anything but high marks, or do their marks range from the highest to the lowest possible mark? If so, does one try to distinguish between an A given to children in the top class section from an A given to children in the low class section? Questions such as these may appear ridiculous to some lay citizens, but they pose problems if they remain unanswered.

Teachers, parents, and pupils want to know what marks mean. If the pupil receives an A or its equivalent for work which is inferior to that of the lowest pupil in the next highest homogeneous section who receives a D or F, what incentive is there for pupils to try to get into higher sections? Some bright pupils have been able to see through such a marking system, with the result that they have refused to exert themselves enough to warrant being placed in an honors section of a grade. To exert themselves thus would mean that they would have to work hard merely to hold their own in competition with other bright

children. By letting themselves get assigned to average sections, they are able to secure top grades and are ranked as the best pupils in their classes without too much effort. This has been particularly true where all pupils tend to do the same work regardless of class or section classification. Second and third graders have discovered they could be considered the best students in an average or low reading section with less effort than if they were placed in the top reading group, with the result that they have deliberately engaged in a "slow down" to avoid placement in the highest reading section. Students at the high school level have refused assignments to honors classes where they would not be guaranteed high marks because the possibility of a low mark would endanger their chances of being accepted in the college of their choice. To meet such challenges, educators have:

Attempted to distinguish between the marks given children in different ability sections. Thus, a pupil in the average section might receive a report showing letter grades followed by a 2; for example, A-2, B-2, C-2. Similarly, pupils in the low section would receive marks followed by a 3; for example, A-3, B-3, C-3, D-3, etc.

Restricted the range of marks given to children in different level sections. Thus, pupils in the highest learning sections could receive the equivalent of A's, B's, and C's, but they would not receive lower marks. Similarly, pupils in the lowest learning sections would receive marks of C, D, or F, but they would not be eligible for marks equivalent to an A or B. Some teachers have objected to such restrictions on the theory that pupils in top sections would not produce quality work because they know that they cannot be given a mark lower than a B.

Based the range of marks that are given to children on the basis of intelligence. Thus in one school, all marks of an A equivalency are reserved for pupils with an IQ over 130. Since pupil achievement is not always commensurate with the potential for a given IQ, some teachers are advised to consider achievement in the fields of reading and English. The addition of these new factors complicates the marking unless the teachers have some leeway in adjusting marks in terms of their own observations concerning pupil ability or potential.

Set standards of achievement for pupils in terms of designated intelligence ranges. Thus, to obtain an A, children with superior intelligence are expected to show achievement comparable to what other children with similar intelligence have done. Some of these bright pupils may receive a B or even a C if it becomes apparent that they are not working above the average category.

IMPORTANCE OF PARENT CONFERENCES

Research studies have repeatedly demonstrated the lack of value of standard report cards because teacher marks have been unreliable and often lack consistency. In addition, it is often impossible to tell the parents what one wants to say through letter grades or short descriptive words. Nothing is so effective as a face-to-face talk between parent and teacher. In some schools, parent conferences replace the traditional report card, but in others they merely supplement it. Planned conferences can be extremely helpful to parents and teachers who sincerely want to help children to overcome handicaps and to work to maximum learning levels. Such meetings enable the teacher and parent to discuss intelligently the aspects of a child's growth which cannot be reported in a formal reporting system, i.e., achievement can be reported on in writing, but at a conference the teacher can supplement her statements with actual samples of a pupil's work and compare it with the work of other children.

Recently, there has been an increased interest on the part of parents and teachers in patterns of behavior and character. What pupils do as social individuals, how they go about their work, and the nature of their attitudes and interests are all a part of the story teachers can tell in the parent conference. The teacher may also get an insight into many aspects of a pupil's background which are not revealed in the classroom. To be most effective, the conference should be held when neither parent nor teacher has the feeling that she has to rush. Privacy is imperative. Establishing a rapport is essential for a mutual sharing and understanding of the child's problems both at home and at school.

Unfortunately, some very excellent classroom teachers cannot express themselves clearly in a parent conference. They may have many things to say, but they have trouble communicating. Some will say too much, and others will not say enough. Other teachers may confuse the parents by educational jargon. One may find a teacher who assumes the role of a psychologist by trying to solve the mother's or father's problems as well as the child's. *Some parents frighten teachers, but more often teachers frighten parents!* Parents should leave a conference with the feeling that they had a fruitful meeting. They should learn how their child is growing academically, socially, emotionally, intellectually, and physically. They should have a feeling that their child is in competent hands. After the conference, the teacher should make a few notes outlining any recommendations or special points covered in the conference. These notes should be helpful as the teacher works with the pupil and may be extremely valuable when other conferences are held with the same parent.

Many schools hold very effective parent conferences during school

time by using substitute teachers or special teachers to cover their classes during the scheduled conference period. In other systems children are released early for a number of days in order to allow teachers to meet parents individually. The authors favor incorporating regular conference days in the school calendar, but others favor half-day sessions which will count toward the minimum number of required days.

THE VALUE OF THE WRITTEN REPORT

With many parents working and with teachers commuting long distances to schools, numerous parent conferences can become a scheduling problem. Consequently, some school systems have adopted the practice of sending home long written reports in place of the typical report card. Theoretically, the written report eliminates many of the objections to the report card. Words and sentences replace cold symbols, letters, or numerals. The teacher is free to express her feelings, findings, and observations in terms of the individual child. She can expound freely on points which need explanation. She can tell parents where a child is in terms of his ability or in comparison with other children in the class.

Although the written report has many advantages, educators find some disadvantages in this type of reporting. For example, written reports require considerable time if they are to be meaningful. Many times, teachers are unable to say what they want to say on paper since composition is not their forte. Poor handwriting or sentences with grammatical, spelling, or punctuation errors do not help teachers make a very effective impression upon the parents.

Some schools use the written report as only one of several types of reporting procedures. One school system sends home three formal report cards plus one detailed written report. Another school system has the teachers meeting with parents for two formal conferences alternating with two written reports. In either case, neither a short note about a special problem nor a chance meeting with a parent in a grocery store is accepted as meeting a reporting standard. A good report, whether written or oral, is based upon careful consideration of all phases of a pupil's growth and progress. This takes time and thought.

A Guide to Writing Letter Reports to Parents. To help teachers write better reports, administrators often develop a file of the better letters (minus identifying names) which come to their attention. Some schools have teacher-teams evaluate the letters which are sent home, again collecting samples to illustrate good and poor writing form. In addition, the teachers may be given an outline or guide to assist them

as they write. The following are points that may be included in such a guide:

All written letter reports should be written in *nontechnical*, easily understood terms.

The letter should be *informative* about what the child has been doing in school and, in some instances, what he will be doing in the future in designated areas or subjects. This is true if help is desired.

The written report should be *brief* (one to two pages), *direct*, and *personal*.

The written report should assume a *positive tone*, even when a critical statement is made.

The teacher should avoid making *generalizations* or statements that can apply to everyone.

The teacher should be able to support any statement she makes with evidence if called upon.

Each teacher should strive to write *complete sentences* which are grammatically correct. (Parents may judge the teacher on the quality of her writing.)

The teacher should indicate what provisions have been or will be made to meet *special needs* of the pupil.

Teachers should point out *ways parents can help* where desired.

Specifically, the written letter report *may include* some or all of the following comments about the pupil:

1. His *work-study pattern*. Is he cooperative? Does he show interest, originality, or creativity? Is he careless or indifferent?
2. His *social adjustment* to other pupils, the teacher, and the day-by-day pattern of school activities.
3. His *specific traits*, such as cooperativeness, reliability, courteousness, sportsmanship, determination, attention span, appearance, leadership qualities, initiative, behavior, accuracy, attentiveness, etc.
4. His *physical growth and development* in comparison with other boys and girls in his age-grade group.
5. His *emotional stability* and the nature of any pronounced emotional problems.
6. His *achievement* in major academic or subject fields, for example: progress in terms of his own potential and in terms of the growth and progress of comparable children; reading level and interests; test results in general terms; and areas in which special help is needed.
7. His *mental maturity level* and *attitude* toward school and life in general.

A teacher's letter to a parent will frequently depend upon the rapport she has established with the parent. If a parent understands the nature of a learner's problem, the teacher does not have to go into as much detail as she does when she is introducing the parent to a new problem. Some teachers have so much that they want to say that they themselves have developed a checklist which includes many small details which cannot be included in a formal report card and which would necessitate a very long, detailed letter. There is some merit to the checklists, but they should supplement and not replace the letter report, which should be a form of personal communication between the home and the school. In any case, the final report which goes home should make it clear to the parent that the school and its teachers are truly interested in the welfare of individual children. The report should be a well-thought-out evaluation of the work or progress of an identifiable child, and it should be a report which tells parents what they want to know about the nature of the learner and his problems.

ADJUSTING REPORTING PRACTICES TO THE LOCAL SITUATION

One of the difficulties one encounters when teachers talk about evaluation is that of determining what terms mean. Although national standards are satisfactory guides in some communities, they are not for others. Thus, while a mark of C may be considered as a mark for average children living in an average community, it is possible to find schools in depressed economic areas where few, if any, pupils would be eligible for such a mark. Similarly, the mark would be considered far from satisfactory in some wealthy suburban communities where the average IQ is 120 or higher. For example, one may ask how to assign marks to children where the average IQ is only 80; here, the fifth-grade or ten-year-old pupil who reads on a high second-grade reading level is among the best readers in his class. In terms of a national standard, the pupils in his reading section are two to three years retarded in reading, yet they are reading close to expectation levels for their mental ages. Without some consideration of the ability factor, these students would never receive anything except failing marks.

Every teacher in a given school should understand the grading system which has been adopted, and then make an effort to evaluate her pupils in the light of established policy. It is essential that all staff members "speak the same language" as they work with each other and with children and parents. From time to time new staff members will need to be oriented to the school's philosophy and general pattern of operation. If changes are made, all staff members must accept them if there is to be continuity in what the teachers do with children from grade to grade or from subject to subject. Since evaluation involves

judgments, there will always be some subjectiveness in what teachers do when they grade papers or rate individual children; however, teachers in a given school can establish guidelines which will help them remain fairly close as they evaluate children in their day-by-day, month-by-month, and year-by-year progress through a given school or school system.

SUPERIORITY OF NEWER TYPES OF REPORT CARDS

Modern parents want to know more about a child's progress in school than ever before. The written report, the parent conference, and many new report cards are steps toward keeping parents fully informed. Many of these report cards include a number of personalized statements which indicate areas of strength or weakness in addition to a standard mark. Some schools use a combination of letters and other symbols to designate progress in a particular skill area.

Educators have found that they have to be selective in the learning characteristics they include in a report card. They should include statements or skills which will interest parents and which can be rated *objectively*. One can study a wide variety of the newer types of report cards in circulation without ever seeing a traditional grade, although the office may still require teachers to submit a mark which can be used on cumulative reports for future reference (see Figure 1).

These report cards tell what the learner is doing and how he is progressing in specific subjects. They are quite different from the traditional report card, which tends to indicate how much subject matter has been learned. All phases of pupil growth may be included in the newer report cards—physical, social, emotional, and academic. Many school systems will report progress in terms of individual capacity instead of in terms of grade standards. Many of the newer report cards use descriptive statements which may be checked or marked according to a prescribed code to show areas of strength or weakness. In a report using a code such as the one on page 152, teachers can tell parents what a given child is doing by means of a dual code which can be translated in terms of statements describing how the pupil works and his rate of progress.

Like many other report cards, this card has space for special comments by teacher and parent. Other report cards have sections devoted to social attitudes, health habits, cooperativeness, and creativity. Not all of them call for a dual marking or code, but there is a trend in this direction. Some of them merely have a space for the teacher to check areas which need attention. While many parents find the modern report cards give them a better picture of what a pupil is doing in class, occasional parents frankly state, "It takes me too long to find out

Figure 1. **Areas Included in a Modern Report Card Designed to Show Basic Skills Taught**

Subject and Work Skills	Academic Achievement					Work-Study Pattern				
LANGUAGE ARTS										
Reads with understanding										
Is able to use library resources independently										
Reads well to others										
Is able to read content materials independently										
Shows growth in the development of reading vocabulary										
Expresses himself effectively and correctly in situations requiring oral language proficiency										
Expresses himself effectively and correctly in situations requiring written language proficiency										
Understands and uses proper grammatical forms										
Shows originality in his writing										
Speaks clearly and distinctly										
Spells correctly in all of his written work										
Writes legibly and with good speed										
SOCIAL STUDIES										
Is able to interpret events and their subsequent effect upon the lives of people										
Shows ability to understand what he reads that relates to both past and current happenings										
Is able to interpret maps, graphs, and charts										
Contributes intelligently to group discussions										
Is able to assume responsibilities requiring leadership ability										
Shows ability to use reference materials										
Shows understanding of time and space relations										
ARITHMETIC										
Shows mastery of fundamental processes										
Is accurate in computations										
Can solve problems independently and correctly										
Works with reasonable speed										
Shows a good understanding of numbers and number relationships										
SCIENCE										
Shows an interest in science and scientific procedures										
Shows ability to understand science principles										
Is able to apply science knowledge acquired to explain natural phenomenon										
Makes contributions to science classes from his readings and observations										
ART										
Shows respect for art and its materials										
Shows ability to use various media creatively										

Achievement Code	*Work-Study or Citizenship Code*
A Is making exceptionally good progress.	1 Pupil works with a minimum of supervision, begins promptly, recognizes responsibilities, cooperates with others, shows courtesy.
B Is making better than average progress.	2 Works effectively if given specific directions, meets obligations, generally can be depended upon to observe class rules regarding work and behavior.
C Is making what may be considered as satisfactory progress.	3 Requires constant supervision, lets others do his share in group activities, does no more than is expected, takes no added responsibilities, loses interest quickly, has to be reminded about the need to observe class rules.
D Is making progress slowly; needs considerable extra help and attention.	4 Wastes time, works poorly, must be constantly reminded about his obligations, habitually offers excuses, interferes with work and progress of others in class.
E Is not making very much progress; may be considered as failing to meet expectation or achievement levels established for his age and grade.	

whether or not my boy is passing," or "I just cannot understand what all the checks, asterisks, and squares mean." Other parents report that they can often give help to a pupil when the report card lists subtopics such as the following under a major subject, thus:

Language Arts

READING	LANGUAGE
Understands what he reads.	Expresses ideas well in oral speech.
Is able to attack new words readily.	Speaks distinctly.
Can read well orally.	Can write complete simple sentences.
Can read well silently.	Can use words as tools to develop creative expression.
Understands sequence of a story.	
Is reading library books independently.	Is acquiring a good vocabulary which he can use in his written work.
Finishes workbook assignments on time.	Uses word book or picture dictionary as a tool for writing.

BASIC PRINCIPLES FOR SETTING UP A REPORTING SYSTEM

1. Many kinds of reporting practices are in use, but each school system should adopt the one which best reflects its own philosophy, objectives, and curriculum for a grade, series of grades, or school division, i.e., primary or intermediate grades. Research studies show

that teacher marks tend to be unreliable and invalid indexes of pupil growth and achievement, but they cannot be dispensed with easily, since they are the basis for many rewards: promotion, the college of one's choice, the field of business of one's choice. Therefore, all staff members should subscribe to common principles of evaluating children within a school or series of grade levels, and the symbols used should carry a definition uniformly understood or agreed on.

2. The method of reporting should show how successfully the school is meeting its broad and specific objectives. Most standard reporting systems show pupil progress in fundamental skill areas. Growth in other areas is not usually recorded, because such growth may not always be evident or may be difficult to evaluate. So new kinds of reports may be needed to show growth in social relationships, leadership, creativity, work-study skills, and so on.

3. The reporting system should serve many purposes: It must enable teachers to satisfy the parents' desire to know where the child has been going or where he is with regard to (*a*) standard achievement and (*b*) ability. The system should indicate areas of special accomplishment as well as areas where assistance is desired. The reporting system should be diagnostic in that it points up areas which may become the basis for present and future programs of instruction.

4. Standardized test results alone cannot be used to show pupil growth and progress. The national norms are seldom based upon the same instructional goals or objectives as in a given classroom. However, a teacher may compare her own observations with the results of a standardized test to substantiate her own marks or to review pupil needs. If used wisely with teacher-made tests, the teacher's observations and discussions with other teachers who have worked with individual children will often help toward a more reliable or dependable evaluation than just using a single index.

5. Teachers should be prepared to examine their own biases or prejudices before attempting to evaluate the progress of their children. Studies have repeatedly shown that pupils who conform tend to obtain higher marks. Furthermore, many teachers have a direct or indirect bias when it comes to marking pupils who come from different homes or environments. Boys tend to receive fewer high marks than girls, just as children from low economic and social levels may have to work harder to secure the same mark given to more fortunate pupils.

6. Teacher marks should recognize individual differences in growth patterns or readiness for learning. Marks should be based upon recognizing real pupil growth. Mere achievement in terms of prescribed grade standards is no guarantee that a given pupil has made substantial growth.

7. Teacher evaluations which recognize pupil ability have value,

but teachers must understand what they mean by *ability*. A single intelligence test may be a very unreliable instrument upon which to base a pupil's report of progress; it may be more desirable to establish expectancy levels upon a range of intelligence. Teachers should avoid the use of such general comments as, "The pupil is working up to his ability," unless they are prepared to substantiate them.

8. Teachers should consider whether it is desirable to ask or expect pupils to work continuously at capacity levels, in the face of the physical and emotional strain this can cause.

9. Teachers must evaluate pupil progress continuously. Instruction should not be based on a hit-or-miss type of teaching. Constant evaluation is an essential for effective instruction, and a cumulative record should be developed and used.

10. Evaluation is a multiple responsibility, and the teacher should work closely with parents and coworkers.

Understanding Promotional Policies

The promotional policy of a school may or may not be consistent with what teachers do with and for children throughout the school year. Research studies have shown that the act of retaining children has little value for most pupils. These conclusions are correct for schools or classes where teachers fail to group children in terms of their instructional levels, but they may not be true where teachers attempt to work with pupils at their appropriate learning levels.

In the former case, the common practice calls for the repetition of a class or grade by pupils who fail to attain *desired* goals of achievement. Nonpromotion in such cases has little value to the pupil, because here the teacher merely reexposes the student to skills or subject matter without trying to bridge the gap between his actual learning level and the instructional level.

In the latter case, nonpromotion is quite likely to mean something different for the pupil, since his teacher should not be reexposing him to the same skills he worked with during the past year. If the teacher takes this pupil from where he was academically the previous year, the grade he is actually in will have little real meaning to him, although socially he may face problems. Further studies of the effects of nonpromotion are needed to see what happens to boys and girls who remain behind in classes where boys and girls continue to work at their learning levels and not at a grade standard.

Under the old concepts of nonpromotion, it was customary to hold back from one-fourth to one-third of a first grade, with the pupils repeating what they had been exposed to the prior year *regardless* of their readiness for the learning activities on the second or even third go-

around. These children were frustrated early and many of them never overcame this frustration.

In contrast, one finds modern children learning at their own pace in many ungraded primaries without this frustration. Anderson [1] reports that many pupils who made slow progress in the ungraded primary during their first year were able to catch up with their chronological-aged peers by the time they were ready to leave the primary grade unit. Here, the school serves as a leveling agent for many boys and girls who began school with a poor foundation for learning. The growth acceleration seems to come with maturity as the teachers continue to work with slow-progressing pupils at the children's rates of learning. This does not mean that *all* slow-learning pupils catch up, but enough do to make one ask why educators were so long in seeing the futility of pushing children into activities before they were ready for them.

CONTINUOUS PROMOTION NOT ALWAYS CONTINUOUS PROGRESS

Dissatisfaction with early nonpromotional policies has resulted in a trend toward continuous promotion. In many communities this refers to a policy of keeping children together on the basis of chronological age instead of on the basis of achievement. Here, promotion is automatic for all, regardless of whether a pupil has completed the work of a designated grade or deserves the right to move into the next higher grade with his classmates. One can build a case for a policy of continuous promotion on the basis of the futility of holding children back under traditional teaching methods and philosophies of education, but one cannot escape the fact that promotion or nonpromotion is an *individual matter*. A blanket policy or a 100 per cent promotional policy can still be harmful to the individual child regardless of how he is taught in school.

In many schools one can find boys and girls who are totally unprepared for formal learning activities. Pushing these immature children on merely because they are chronologically ready to enter the next grade can hurt them. They need a chance to catch up, sometimes academically, but in many instances they need time to develop along social, emotional, and physical lines. Because of their immaturity, they do not fit into higher learning situations. As a result, automatic promotion can lead to just as much frustration, if not more, as holding other children back. Many such children will welcome the opportunity to remain with a teacher they know and love if parents will refrain from placing them under extreme pressure. The authors are not advocating a policy of nonpromotion so much as they advocate a

policy which is based upon the understanding of the needs of individual students.

If the parent and teacher have been working closely together over the course of the year, the issue should not be so much one of continuous promotion as one of continuous growth. They should be able to see whether a given action will result in a continuation of the child's social, emotional, and academic growth. Will it be easier for the child to work with younger and less mature children for a time where he can hold his own with a minimum of frustration, or will it be easier for him to continue with his chronological-aged peers who are working at such advanced levels that he is constantly frustrated in his attempt to keep up with them? The answer to such a question will depend to some extent upon the way the school is organized and how children are grouped for instruction.

If the teacher takes her children where she finds them, in order to help them progress normally, the issue of promotion or nonpromotion should not exist. On the other hand, if the pupil is in a school where teachers recognize neither individual differences nor a stage of growth for learning, the promotional policy of a school can have serious consequences to the pupil. In such schools there is little to be gained by having pupils repeat a grade, regardless of their needs, but by the same token the pupils will not make much progress in the advanced grade with a teacher who is not prepared to work with them at their learning level. Here, continuous promotion may not mean continuous progress for individual pupils until someone is ready to plan an instructional program for them in terms of their needs.

THE UNGRADED SCHOOL AS A SOLUTION TO THE PROBLEM OF CONTINUOUS PROGRESS

While many educators have been able to resolve the problem of continuous progress without changing the nature of their school organization, the easiest solution for others may lie in some form of ungraded school pattern of organization. In 1967 approximately 17 per cent of the nation's 87,000 public elementary schools were operating gradeless school programs at the primary levels. This represents a doubling of the number of such school organization plans in a five-year period. Unfortunately, some school systems have adopted the name "ungraded" without making any significant change in the way children are grouped, taught, evaluated, or promoted. In such schools, children still have to contend with restrictions which go with the formal graded school, which means that continuous progress is still a form of hypothetical rationalization.

Educators are finding that the ungraded school has a promise for

children that is often missing in many graded schools. Essentially, it is only a new method of organizing the school, because teachers will continue to use the same teaching tools and materials in working with the children, but within a framework of a different teaching philosophy and approach to learning. Traditional grade standards tend to disappear as teachers adopt an approach to teaching that is based upon continuous progress in selected areas, especially in the field of reading. This is true where parents and teachers accept the fact that traditional grade requirements or offerings often fail to give adequate challenge to better-than-average children, but that at the same time they result in frustration for pupils who are less gifted intellectually, socially, emotionally, and physically.

The ungraded school attempts to free teachers from grade restrictions. Standards are still maintained, but boys and girls attain them at their own rates of learning. Their progress, however, will still depend upon the readiness of the classroom teacher to plan in terms of children's needs. Unless the teachers are prepared to do so, continuous progress may never become a reality, since it is not the organization pattern that counts so much as what teachers do within the classroom with boys and girls. The new setting has possibilities, as will be seen in another chapter.

ELIMINATION OF ACADEMIC ACHIEVEMENT AS BASIS FOR PROMOTION AND NONPROMOTION

Adults are prone to think of promotion or nonpromotion in terms of academic achievement, and thus they tend to ignore other factors that affect the child's welfare. Placement of a child in a particular learning situation should depend upon his *total stage of development*. While a pupil may be retarded academically, he may still be maturing socially, emotionally, and physically. Most adults have seen evidence of this fact when normal thirteen-year-olds find themselves in eighth-grade classes with sixteen-year-olds who cannot compete academically but are far more worldly-wise than their younger classmates. If there is concern for any of the children in such classes, it is likely to be for the *average* children, who may learn something nonacademic from the older pupils.

Adults often show an unwillingness to consider as "handicapping factors" the social and emotional immaturity of pupils who show an intellectual maturity with an accompanying success in their academic activities. However, some of these children will, on occasion, be much happier if left to work with children who are younger chronologically, socially, and emotionally. Thus, one may find a physically immature boy who is miserable and unsure of himself because his small stature does not allow him to take an active part in the rough-and-tumble

activities of the bigger fellows who are his own age. His interests may not be on a par with his chronological-aged peers, so it is no pleasure to associate with them. If left to himself, he will play with younger boys from the preceding grade. Also, one can find some very unhappy sixth-, seventh-, eighth-, and ninth-grade pupils who find themselves left out of activities because certain normal, physical changes are slow in making an appearance. Their interest in and readiness for activities involving members of the opposite sex just is not there. The problems of such children can be accentuated if they happen to be pupils who have been accelerated academically.

Orlo L. Derby [3] makes the point that few children ever benefit in their total growth pattern as a result of retardation or nonpromotion. He says, "The one legitimate reason why a child should not go on is probably that he is immature socially, emotionally, and mentally." Actually, academic retardation may result from one or more of these factors, but true causal factors may be hard to discover. Children who come from culturally deprived homes may not be ready to learn to read, write, and speak on a par with average children. Some of them may have the mentality, but they lack the incentive or purpose that is an essential for success. Their sense of values may not be the same as that of the teachers, which leads to conflict and a lack of understanding.

When educators are seriously considering what is best for a certain boy or girl, they have to contend with "emotionalism" on the part of the teacher or of the parents. This may make it difficult to decide what is best for an individual pupil. Some adults will argue that a pupil should not be held back because of what it will do to his personality. Here again, one must consider the nature of the school setting that the pupil will have to face if he goes on with his chronological-aged peers. Will the frustrations that go with continued academic failure in the next grade be greater than the so-called "feeling of inferiority" which it is claimed he may develop if he is left behind his friends? In the past, educators have made an issue about this point. Heffernan [5] says:

> Non-promotion is devastating to the personality of children. It deadens initiative, paralyzes the will to achieve, destroys the sense of security and acceptance in the family circle, and promotes truancy and delinquency.

The authors are willing to yield to Helen Heffernan if the child is merely going to repeat the same experiences which he was exposed to formerly, *but the arguments will not hold true for many children who remain in a learning situation where every effort is made to assist the pupil in overcoming the obstacles which are holding him back*. Parents and educators have overemphasized the concept of grade and grade

placement. The ungraded school is evidence that the pupil's grade placement is inconsequential as long as the pupil is able to make continuous progress. Also, one finds multigrade and multiage classes where boys and girls work successfully on their own learning levels. Children can be very happy in a classroom setting which allows them to succeed continuously as they work. This should be the criterion which determines where given children are placed. This does not mean that one ignores chronological, social, physical, emotional, and mental factors, because they are important aspects of the learning process. However, with teachers who recognize individual differences through grouping and individualizing instruction, children are not exposed to personality-thwarting activities in the classroom.

In some cases, parents have a right to worry about what happens to a pupil's personality, but in other cases the parent arguments are insincere and are prejudiced on the basis of emotions rather than on what is best for the child. Family pride can be the biggest threat to a pupil's personality. Educators have rested safely and securely behind a 100 per cent promotional policy because it was easier to do so than to try to argue with belligerent parents. However, democratic administration should not allow the rights of individual children to be lost in the face of blind emotionalism. If the method of reporting has been of high quality, the teacher and other staff members should have been working with the parents over many months to determine what would be best for the pupil in the future. All too often, parents are not prepared to accept that a son or daughter may require more time to reach a designated learning level than it took a sibling, and they let their emotions rule what they say and do. This is where a sound method of reporting will set the stage for questions regarding promotion and placement.

Remember, a pupil has to live at home as well as at school. He has to find a measure of acceptance in the home; therefore, when he fails to progress at levels deemed satisfactory to the parents, the equilibrium of the home may be upset. Family pride, for example, can be so important that some parents will go to any extent to preserve what may be called a family image. Sometimes, in order to save face, the best offensive is an attack on the teacher or school. Frequently, a charge of incompetency or discrimination helps to win a point. Or some parents, when faced with the disgrace of having a failure in the family, threaten to move or transfer the boy or girl in question to a better school. In some cases, they not only transfer the pupil to a private school, but move to a completely new neighborhood. In view of such personal objections to nonpromotion, educators have to consider seriously the impact of their recommendation upon a pupil in terms of his day-by-day home relations.

As in all phases of education, educators should decide each child's future in relation to promotion or nonpromotion in terms of what is best for the individual. Helping parents see differences in behavior and achievement is an important part of dealing with this whole question.

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Shall We Get Rid of Grades?

Robert. L. Ebel

ABOUT THIS REPORT

Grades are essentially meaningless, educationally unimportant, unnecessary, and even harmful, say the critics. Dr. Robert L. Ebel, professor of education at Michigan State University, disagrees. He lists 22 of the most common criticisms of grades, and argues that many of them are mutually inconsistent, others are not supported by experience and experiment, and still others are inaccurate or irrelevent. Some criticisms, on the other hand, seem valid, but the remedy "is not to get rid of grades, but simply to do a better job of grading."

Dr. Ebel provides a rationale for the grading system and discusses some of the alternatives which have been proposed, such as detailed written reports and parent-teacher conferences. He argues that these are less cost efficient and, perhaps more important, less informative than that familiar summary statistic, the grade.

A past president of the American Educational Research Association, Dr. Ebel is the author of various tests, test reviews, and articles on measurement, and is editor of *Encyclopedia of Educational Research, Fourth Edition*.

CJF

Robert L. Ebel

From time to time, various leaders in education have suggested that schools ought to "get rid of grades." They have mentioned a number of reasons why such a change would be desirable. The ones most commonly expressed are set out below under four major headings.

A. Grades are essentially meaningless
   1. There is great diversity among institutions and teachers in grading practices.
   2. Many schools lack definite grading policies.
   3. A single symbol cannot possibly report adequately the complex details of an educational achievement.
   4. Teachers are often casual or even careless in grading.
   5. Grades are frequently used to punish or to enforce discipline rather than to report achievement accurately.

B. Grades are educationally unimportant
   6. Grades are only symbols.
   7. The most important outcomes are intangible and hence cannot be assessed or graded.
   8. A teacher's grades are less important to a pupil than his own self-evaluations.
   9. Grades do not predict later achievement correctly.
   10. What should be evaluated is the educational program, not the pupils.

C. Grades are unnecessary
   11. Grades are ineffective motivators of real achievement in education.
   12. When students learn mastery, as they should, no differential levels of achievement remain to be graded.

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13. Grades have persisted in schools mainly because teachers cling to traditional practices.

D. Grades are harmful

14. Low grades may discourage the less able pupils from efforts to learn.
15. Grading makes failure inevitable for some pupils.
16. Parents sometimes punish pupils for low grades, and reward high grades inappropriately.
17. Grades set universal standards for all pupils despite their great individual differences.
18. Grading emphasizes common goals for all pupils and discourages individuality in learning.
19. Grading rewards conformity and penalizes creativity.
20. Grading fosters competition rather than cooperation.
21. Pressure to get high grades leads some pupils to cheat.
22. Grading is more compatible with subject-centered education than with humanistic, child-centered education.

Some of these criticisms appear to be mutually inconsistent. How can grades be both harmful and unimportant? In some of them, there may be considerable truth.[1] Others seem not to be soundly supported by experiment, experience, or logical inference.[2] Still others combine some lack of accuracy with some deficiency in relevance.[3] The remedy for problems pointed out in some of them[4] is not to get rid of grades, but simply to do a better job of grading.

"They support grading because grades help them to teach well."

A Rationale for Grading

A number of these criticisms fairly beg for immediate answers. But it may be more constructive to first present a basic rationale for grading as part of the instructional process. It is the rationale that has persuaded most educators to support a system of grading in the institutions they serve. To say that grading persists simply because teachers tend to follow tradition blindly is to do a grave injustice to hundreds of thousands of capable and dedicated teachers. They support grading because grades help them to teach well.

Grading systems exist because most educators recognize that effective learning requires the active participation of the learner, that this participation costs considerable effort, and that the necessary effort is most likely to be put forth when success in learning is recognized and rewarded. As most teachers know from their own experience, differential grading does tend to motivate and direct study, and to provide tangible and prompt rewards for the efforts expended.

It has been said that pupils should learn for the sake of learning, not for the sake of grades. But this is a false antithesis. High grades and effective learning are not alternative goals. They are closely parallel, if not identical. When properly given, high grades report success in learning. One who works for high grades does so by working for maximum learning.

"High grades and effective learning are not alternative goals."

When differential grading is replaced by broad category (pass-fail) grading or by blanket grading (the same high grade for all regardless of effort or achievement), the almost universal experience is that efforts to learn and levels of achievement decline. Students who take differentially graded and broad category courses during the same school term report that they spend most of their time studying for the differentially graded courses.[5] Quite understandably they put their efforts where the efforts are likely to make a difference.

Another reason why grading systems exist is to report, periodically and systemically, a pupil's educational achievements to the pupil, to his parents, to his advisors, and to all others interested in his educational progress. The facilitation of learning is a complex and difficult process. It proceeds best when all concerned can cooperate actively in it. Cooperation requires information, and grades provide a concise summary of some of the needed information. A grade almost always summarizes a vast amount of specific detail. Often that summary is all that is wanted; all that would be used effectively. But in some cases the grade simply serves notice that a problem exists and that arrangements should be made to investigate the problem more thoroughly.

Opponents of Grading

It is worth noting that opposition to grades comes most frequently from inside the educational establishment. It comes from teachers who must determine and justify the grades. It comes from administrators who must deal with unhappy parents whose children seem to be doing poorly in school. It does not come from

[1] viz. 1, 2, 4, 14, 16

[2] viz. 7, 8, 10, 11, 12, 13, 15

[3] viz. 3, 5, 6, 9, 15, 17, 19, 20, 21, 22

[4] viz. 1, 2, 4, 5, 14, 15, 16

[5] Karlins, J.K., M. Kaplin, and W. Stuart. "Academic attitudes and performance as a function of a differential grading system: An evaluation of Princeton's pass-fail system." *Journal of Experimental Education*, 1969, 37:38-50.

it somewhat grudgingly and of necessity. Their advocacy of change puts more stress on ending a practice than on replacing it with something better. Their arguments focus more on the evils of the old than on benefits of the new. They seem to be more interested in avoiding the problems and stresses of grading than in the improvement of learning. Beset with a multitude of pressures, as many educational leaders are, it is quite understandable if they welcome the opportunity to get rid of one source of problems, especially when it can be done in the name of progress.

Those who endorse educational evaluation do not always say clearly whether what they have in mind is pupil evaluation, or program evaluation, or both. The two are quite different, and those who emphasize either have quite different views of learning. Those who believe that the pupil's own efforts have little to do with his success in learning, or that pupil evaluations can make little positive contribution to the motivation and direction of those efforts, see no reason to retain pupil evaluations. They prefer to emphasize program evaluation in the belief that a pupil's achievement in learning depends almost entirely on the appropriateness and quality of the educational

"Those who endorse educational evaluation do not always say clearly whether what they have in mind is pupil evaluation, or program evaluation, or both."

program that is offered to him. Such educators make up a minority of the whole profession but may be a majority among advocates of child-centered, humanistic education.

Those who do believe in pupil evaluations but who also want to get rid of grades, insist that there are better means than grades for reporting pupil evaluations. Two of the most frequently mentioned alternatives are (1) detailed written reports of the pupil's achievements and problems, and (2) parent-teacher conferences. Either of these *could* report a grade, or something equivalent to it, along with considerable information on other aspects of achievement. Teachers who use these alternatives, however, typically avoid getting very specific about the child's level of achievement relative to his classmates. Although the alternatives are often supported as being more informative, it is safe to say that they typically give the parent less information than a grade would give about a pupil's relative level of achievement in his class.

Surely a grade is not all a parent needs to know about the learning problems of a child who is having difficulties in school. But just as surely it calls attention to these difficulties and stimulates corrective action. Few pupils or parents regard the information provided by a grade as "irrelevant", which some educators have claimed that it is. They know better

the students who earn the grades, or from the parents who are anxious about them. Proposals to abandon grades, or to shift to some less definite, and less informative, alternative to differential grade almost invariably encounter opposition from parents. Excellence in scholarship is but one of many kinds of excellence that is valued in the world of affairs. Perhaps it is natural for them not to honor a kind of excellence that contributed little to their success. But they err if they conclude from this that success in learning ought not to be recognized and honored in anyone else.

Alternatives to Grades in Educational Evaluation

Many of the educational leaders who urge schools to get rid of grades disclaim any intention of doing away with educational evaluation. But clearly, most of them are less than enthusiastic about it. They tend to accept

than that, and so should the educator, whether he approves of grades or not.

A third alternative to grades is what is sometimes called "continuous reporting of progress". As each assignment, exercise, or project is completed, it is evaluated and the evaluation reported to the pupil. No one can deny the educational value of such reports. But there can be serious doubt that it provides an adequate substitute for systematic, periodic, summary assessments of achievement. It provides only a sketchy basis for somewhat ambiguous reports to parents, and yields no convenient data for a cumulative record of educational progress.

In considering alternative methods of pupil evaluation, it is important to pay attention to their cost benefit ratios. In this respect, written reports and parent-teacher conferences seldom show up as well as grades. While it is not simple or easy to determine, report, and defend valid grades, that task is usually less costly of time and effort than the task of preparing a valid, informative written report, or of preparing for a productive parent-teacher conference. Further, grading seldom costs any loss of time for instruction, while the alternatives often do. Whether the alternatives contribute enough indirectly to the facilitation of learning to make up for the direct loss of time for teaching is open to question.

". . . even if the alternatives to grades could be made equally informative and cost efficient, they would not escape most of the criticisms that have been leveled at grades."

Finally, it is worth noting that of the 22 criticisms of grades listed at the beginning of this paper, all but two (3 and 13) also can be made of other modes of pupil evaluation. Thus even if the alternatives to grades could be made equally informative and cost efficient, they would not escape most of the criticisms that have been leveled at grades.

Response to Some Criticisms of Grades

Let us turn briefly to consideration of some of the criticisms of grades listed at the beginning of this paper. Some of them (1, 2, 4, and 5) can be answered by doing a better job of grading. Others seems to make unreasonable demands on grades. Grades were never intended to report on the complex details of achievement (3). Their job is simply to report the general level of achievement. They are indeed "only symbols" (6), but this does not make them meaningless or useless. Much of the information we need comes to us via symbols. What is any word or number but a symbol? And while it is true that grades predict subsequent achievement imperfectly (9), this should not discredit grading. More perfect grades would predict later achievement better, but even the best of them cannot

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be expected to be perfect predictors. Future achievements depend on much more than past achievements—on effort, opportunity, and luck, among other things.

Several of the criticisms seem to be based on improper or unnecessary contrasts. There is no need to decide whether grades are more or less valuable than self-evaluations (8). The two are not mutually exclusive. Grades can contribute to valid self-evaluations. Nor is there any valid distinction between pupil-centered and subject-centered education (22). All good teachers recognize that their pupils are individual human beings. But this does not keep them from trying to help those pupils learn useful subject matter. This does not keep them from instructing pupils in groups, whenever that seems to be advantageous (18). Finally, the contrast between cooperation and competition (20) is also somewhat spurious. Grading emphasizes individual achievement more than it emphasizes competition. Individual achievement does not require limiting the achievement of others. Indeed many students have found cooperation very helpful in their pursuit of individual excellence.

"There is no need to decide whether grades are more or less valuable than self evaluation. The two are not mutually exclusive."

Of the remaining criticisms, let us consider only the five (7, 12, 14, 15, and 16) that are mentioned most frequently and taken most seriously by educators. An important outcome of education cannot possibly be intangible (7). To be important, it must make a noticeable difference. If it does, it is not intangible. If it does, it can be measured. For all that measurement requires is that a difference in some characteristic can be observed and verified objectively. Out of a collection of such observed differences a scale can be constructed. Any objective that can be defined clearly enough for purposeful instruction has also been defined clearly enough for objective measurement.

Mastery learning has recently become a popular concept (12). Even where mastery can be defined clearly, which is in a small minority of fields of study, it does not insure identity of achievement in learning. For some will learn faster and more than others. Their achievements are greater, and should be so reported to any who are interested in the progress of learning. It is simply not true that mastery learning results in no overall differences in levels of achievement.

A major concern about grading, especially among teachers in the primary grades, is the discouraging effects of low grades on certain pupils (14) and the inevitability of failure for certain others (15). The first things to note about these criticisms is that the low grades did not cause the low achievement. They simply report it. The second thing to note is that such problems are not likely to occur if the educational program, and the basis for evaluating achievement, is appropriate to the pupil in question. No good school and no good teacher will ask any pupil to achieve the impossible or even the improbable. Any pupil who has done as well as can be reasonably expected should never be given a low or failing grade. The problem these criticisms refer to is not a problem of grading. It is a problem of instruction.

Finally, consider the problem of parents who respond inappropriately to low grades, or even to high grades. The frequency and degree of seriousness of abuses in this area can easily be overestimated, but unquestionably such abuses do occur. The obvious answer is to attempt to educate parents away from abuses of these kinds. If this has been tried and has failed, the only humane recourse may be to withhold grades from particular parents. Surely such abuses do not constitute a valid argument against the use of grades in general.

Concluding Comments

The test of any system of grading, or of any change in grading practices, is the contribution it makes, or the harm it does, to pupil learning. If a school system has a comprehensive, systematic program for measuring educational achievements accurately, it should have no trouble, theoretically, in finding out whether, in the long run, the use, or the abandonment, of grades has been beneficial or harmful. But few school systems have such measurement programs. Few maintain constant long-run programs of instruction which permit the study of effects of a single variable. And few school patrons are willing to accept the danger of adverse consequences simply to test the effect of some proposed change. So decisions on grading policies are likely to continue to be based more on experience and rational inference than on experimental data.

Beware of sweeping statements to the effect that "research has shown" this or that. Most educational research studies are conducted on a small scale in special circumstances, in a constantly changing educational environment. What the research actually showed may be only a small part of what the writer who cites it seems to claim. Further, if the point is important and the data highly relevant, the educator who uses research data to support an argument ought to present the data and not just mention it as existing somewhere.

The concerns of teachers, and the debates in educational journals, support the belief that pupil evaluation presents a basic issue of educational policy. The issue focuses on two questions:

1. Does a pupil's own effort to learn make a substantial contribution to his success in learning?
2. Do periodic, systematic, summary evaluations of achievement contribute to the motivation and direction of his efforts to learn?

If the answer to both questions is an unqualified yes, as I believe it is, then we should not get rid of grades.

Classroom Evaluation and Grading: Norm-Referenced or Criterion-Referenced?

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The drift of educational concern during the decade of the sixties has resulted in an emphasis on individualized instructional systems and increased utilization of those classroom instructional strategies that manipulate instructional variables in an effort to optimize learning potential. Outgrowths of these research efforts are such instructional systems as the nongraded school model (Goodlad and Anderson, 1959), programmed instruction (Glaser, 1963), hierarchical learning structure (Gagne, 1967), independent study, and the mastery learning model (Carroll, 1963; Bloom *et al.*, 1971). These innovations which are widely being adopted in today's elementary and secondary schools place new emphasis on the means for evaluation of a system's learning outcomes. In response to this new emphasis, Glaser (1963) revitalized thinking and research on two evaluation procedures by contrasting a "criterion-referenced" as opposed to a "norm-referenced" approach in measuring student performance. The present article is an attempt to distinguish between these two evaluational procedures for classroom teachers by identifying the characteristics of the evaluation and grading process that differentiate the norm-referenced from the criterion-referenced model. In addition, the role of behavioral objectives within each model will be examined as no present day discussion of evaluation is complete without mention of behavioral objectives.

The Role of Instructional Objectives in the Evaluation Process

The pros and cons on the role of behavioral objectives in the evaluation of curricula and the assessment of pupil performance have been expounded on by Tyler (1950), Bloom (1954), Krathwohl *et al.* (1964), Popham (1969, 1970), Eisner (1969), and Ebel (1970), to name just a few, and while the present focus is not strictly on behavioral objectives, they are inherent to the evaluation process and therefore cannot be ignored.

College teachers and textbooks on tests and measurement for years have been stressing to students in education that the first step in the construction of any achievement test is to define the objectives of instruction. The process of just specifying an objective is not enough though; the objective also should operationally define the student behavior to be exhibited upon mastery of the given objective. Once the objectives have been specified, test items are written which sample both content and objectives. Until the recent emphasis on the specification of behavioral objectives, the majority of classroom tests constructed did not begin with explicitly stated objectives, but merely were constructed by the teacher to sample the content taught in the course. Items written in this manner, with no correspondence between

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items and previously stated objectives, define course objectives which are implicit to the teacher. All teachers in all courses have course objectives which, if not stated explicitly, are implicitly defined by the structure of the course and its content. When classroom tests are not constructed based on explicitly specified objectives, the objectives implicit to the teacher are identified by the test items written. For example, in the initial stages of the construction of a classroom test or in choosing a standardized test for unit or course evaluation purposes, the teacher must ask the question, "What have I stressed as important content or skills during the instructional period?" or "What was I trying to 'get across' in this unit?" or simply phrased in present terminology, "What were my objectives?" If the objectives were explicitly stated previous to instruction, then these questions are answered and items are written based on these objectives. Otherwise items are written based upon course objectives recalled by the teacher as having been important. In either case objectives are used, whether the teacher is cognizant of their use or not, in all testing or evaluation situations.

Advocates for stating behavioral objectives previous to instruction would question whether it is fair to the student not to specify objectives explicitly. If they are not, the testing environment becomes a guessing game between student and teacher. Years of practice from elementary school through graduate school at guessing the teacher's objectives has indicated that very few students within a single class can agree as to what the really "important" points are in a given learning situation. Is it fair to burden the student with this guessing game? Or does it lead to more incidental learning as opponents of behavioral objectives would imply? In either case, the evaluational procedure contains a statement of objectives, implicitly or explicitly defined by the teacher.

Normative- versus Criterion-Referenced Grading

Grades, as such, are merely the end products of the classroom evaluational process. They are intended to be indicative of an individual's performance on a given achievement instrument and imply a certain level of achievement, the interpretation of which is dependent upon the evaluation model used. The basic distinguishing characteristics between an evaluation model that is "criterion-referenced" in contrast to being "norm-referenced" have been noted by Glaser (1963), Popham and Husek (1969), and Mayo (1970). The "norm-referenced" model measures an individual's performance in relationship to the performance of other individuals measured on the same instrument. The important identifying characteristic is the assignment of a grade for an individual based upon his position relative to some norm (i.e., peer) group. In contrast, the "criterion-referenced" model evaluates an individual's achievement relative to some performance standard agreed upon and specified in advance by the teacher.

Norm-Referenced Grading

The norm-referenced model for assigning grades is the one most fre-

quently used in practice (referred to as "grading on the curve") and is stressed in many introductory texts on test and measurement (i.e., Thorndike and Hagen, 1969). Its use is facilitated by the fact that most standardized tests are norm-referenced. Specification of objectives under this evaluation model may be either implicit or explicit. In either case students know that they are in competition with their fellow students, that individuals will be compared, and that the final grade will be given on the basis of their position in the score distribution relative to other individuals. Even with the explicit specification of objectives in behavioral terms, the norm-referenced model requires that the final grade for an individual be based on the number of objectives mastered relative to the number mastered by other members of the class. An A, B, C, etc., under this model tells one that an individual learned more or less than someone else, but gives no indication as to what exactly it was that he learned.

Criterion-Referenced Grading

Explicitly stated objectives prior to instruction are a necessity in a criterion-referenced grading system. Items are matched to objectives and are used to measure whether a student has mastered the objective or not. In contrast to norm-referenced grading, grades are assigned according to prestated criteria based upon the number or type of objectives mastered. This type of grading has historic precedence in the "absolute standard" grading system. The important characteristic of the model is that the student's grade is based upon his performance on some standard and is independent of the performance of other individuals. If the instructor should decide, for example, that students who master, that is pass, 85% or more of his/her objectives on a given test will receive a grade of A, then the criterion is set. Under the prescription of this evaluation procedure students should be aware of the objectives of instruction, and the criterion standards set by the instructor employed for the assigning of grades. To indicate level of achievement the present A, B, C, etc., designation can be left intact.

To allow for individual differences which will occur within the fixed instructional time limit of most classes, a sliding grade scale can be developed to indicate which or how many objectives have been mastered. Again, performance standards necessary to receive a particular grade must be specified prior to each instructional sequence. The varying criterion to which we refer assumes that objectives of instruction will differ not only regarding specific content but with regard to the level of understanding the objective requires. Useful taxonomies stressing the hierarchical structure of ability have been provided by Bloom (1954) and Gagne (1965). To efficiently employ criterion grading standards the desired level of ability for a given pupil outcome must also be specified within the statement of the objective itself. Test items are then developed to assess an objective at a specific level of understanding. Grades are then assigned according to the prescribed criterion, i.e., a D grade is given if 55% of the knowledge items

are correct, a C grade if 65% of the knowledge items plus 15% of the application items are correct, etc.

Characteristics of Measuring Instruments Used for Evaluation

During the course of an academic term the classroom teacher very often needs to develop differing types of evaluation devices to assess student understanding and knowledge. The following discussion will attempt to determine the value and feasibility of both norm-referenced and criterion-referenced grading in aiding instructional decisions.

Diagnostic Evaluation

The function of diagnostic evaluation is to determine the presence or absence of prerequisite skills, to determine the students prior level of mastery, or to determine underlying causes of reported learning difficulties. When criterion-referenced scores are used with this form of evaluation, interpretation is automatic in that the score itself details what the student can actually do and what skills and content he still has to master. The use and appraisal of norm-referenced feedback, by contrast, will differ according to the makeup of the norm group. Test items which make up this type of evaluation device should include a large number of easy items, that is, having *item difficulties* of 65% or higher (where item difficulty is the percent of students passing each test item). For diagnostic evaluation, it seems that both criterion- and norm-referenced tests can provide valuable information. The latter information would be useful if the diagnostic evaluation is to be used in placing the student at the proper instructional starting point.

Formative Evaluation

This form of evaluation serves the purpose of providing feedback to students and teacher on student progress through a unit of instruction. It may be best distinguished from other forms of evaluation in that it takes place during instruction itself, and therefore provides feedback such that the instructor may locate errors in terms of the structure of a unit so that remedial or alternative instructional techniques can be prescribed or developed. Because formative evaluation provides immediate feedback to the instructor and students as to mastery of stated objectives, it would seem evident that criterion-referenced tests would offer the most useful information. Norm-referenced assessment would indicate relative student mastery to the group, while the criterion score could alert the instructor to the percentage of his students who are mastering his objectives. This information more correctly allows for decisions to remediate instruction on a given unit, or to continue on to subsequent units.

Summative Evaluation

The function of summative evaluation is the certification or grading of students at the end of a unit, semester, or course. It is typically characterized as the terminal evaluation upon conclusion of a course. The role of criterion-

referenced and norm-referenced grading procedures as they relate to summative evaluation must reference the understandings stressed earlier in this article. If the classroom instructor is employing one of the many available new techniques for instruction, then the model is very often dependent upon criterion-referenced grading (i.e., programmed instruction, independent study, mastery learning model) as the summative device for assigning a grade. Given that instruction is not necessarily structured to some educational innovation, is it meaningful to assign final grades using a criterion-referenced system? To answer this question, we pose another question, "If the instructor begins his or her course with a set of objectives which he or she intends for their students to master, and the instructor considers that mastery of, say, 85% of these objectives is sufficient to warrant a grade of A, then if a majority of students demonstrate such mastery, have they not succeeded in mastering the course content?"

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REPORTING LEARNER PROGRESS TO ANCILLARY PERSONNEL

by
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One of the most important tasks to be performed by teachers of exceptional learners in regular classrooms is working with ancillary personnel who also have responsibilities to the learner. A critical part of this task of cooperation is sharing data about the learner to persons in supportive roles. Since there is a variety of positions, agencies or offices represented by ancillary personnel, the teacher must be skilled in obtaining and summarizing data from tests and observations and in asking questions that should be answered by such persons. If the teacher is able to report adequately and accurately to others with whom s/he works, support persons can provide more direct and specific help to the teacher and the learner. This module helps prepare preservice teachers to work more effectively with ancillary personnel by providing them with a variety of procedures for reporting learner progress.

Student Outcomes

At the end of this module, the student will be able to develop plans for reporting learner progress to ancillary personnel.

Instructor Information

Prerequisites:

In order to complete this module the student should be able to recognize and describe behavioral characteristics which indicate both normal and atypical developmental patterns of learners. The student should also demonstrate knowledge and application of classroom assessment principles and procedures appropriate to exceptional children, demonstrate ability to make appropriate curricular choices for exceptional children and plan and deliver instructional programs for exceptional children in regular classes. Finally, students should be able to demonstrate ability to maintain records of daily progress for the exceptional child before using this module.

Organization:

This is a very comprehensive module that includes knowledge and skills essential to the attainment of the learner outcome. The content is conveniently broken into manageable components for the students; it consists of nine required readings and twenty-one activities. In order to stay within a reasonable teaching time of five hours, all enabling activities, exclusive of the oral reports must be done outside class. The readings constitute, for the most part, the theoretical framework for the development of the skills found in the student activities. All readings included in the reference list should be placed on reserve for students in an education library.

Although the module is organized in such a way that students can work on much of it independently, the instructor must organize in-class or out-of-class time to provide assistance to the students and to evaluate their products.

Content Overview:

It is important to note that the content presented in this module is based directly on the knowledge and skills represented in the areas listed under "Prerequisites." The focus of the module is on the application of skills previously acquired or developed in the module's activities. The content includes:

1. Precision teaching
2. Mastery learning
3. Procedures for assessing academic skills
4. Systematic classroom observation techniques
5. Observation techniques for screening conduct disturbed children
6. The Pupil Profile of Reading Skills
7. Informal assessment procedures: process and product analysis
8. Precision Referral Form
9. Self-management for children with behavioral disabilities
10. Informal assessment methods for: visual discrimination and memory; auditory discrimination and memory; letter identification; writing the alphabet sequence; phonetic knowledge; tactual ability; reversals rotations; verbal skills; copying at near and far points; reading levels; self-concept; eye-hand coordination and written language; following directions; gross motor skills.
11. Construction of profile sheets
12. Analysis of error patterns
13. Observation of behaviors interfering with academic progress
14. Construction of behavior grids and classroom implications
15. Comparison of test data and observation data
16. Referral questions
17. Summarizing data for ancillary personnel

Suggestions for Teaching:

As indicated under "Organization," much of the student work required in this module is the application and/or development of skills. Therefore, it will be helpful for the instructor to make sure that the following are available to the students, whether they are in student teaching or not.

1. Standard scores and percentile ranks for at least one standardized test that has been administered to a class.
2. Seatwork assignment products from: phonics, arithmetic computation, spelling, handwriting.
3. Charts and graphs showing learner progress.
4. Classroom observation form
5. Social and emotional behaviors of five learners.
6. List of visual behaviors of five learners.
7. List of auditory behaviors of five learners.
8. Test scores and observation data for five learners.
9. List of five priority behaviors that warrant professional evaluation.
10. List of reading behaviors that warrant referral.
11. List of mathematic behaviors that warrant referral.
12. List of spelling behaviors that warrant referral.

13. List of visual responses that warrant referral.
14. List of auditory responses that warrant referral.
15. List of social and emotional responses that warrant referral.
16. List of questions about the learner that cannot be answered by classroom assessment.
17. List of classroom procedures and classroom environment.
18. Cumulative records, teacher's records, test results, intervention data.

The instructor may find it helpful to have students use this module independently, with instructor assistance and supervision. This is especially so if students are doing their student teaching. If used as independent learning activities, considerable instructional time can be eliminated. In any event, the careful evaluation of the students' products is imperative if the students are to develop the ability to give accurate and adequate reports to ancillary personnel. The final timed activities integrate the skills stressed in the enabling activities and should not be omitted. The instructor may, however, decide to omit some of the multiple applications of skills, e.g., spelling behaviors that warrant referral, but at least one application of each skill should be required.

The first required reading, "The Behavior Description Referral Form: A Tool for the School Psychologist in the Elementary School," by Alper and White should be required for the students before the module is introduced. It may also be helpful to review with students the content and skills covered in the areas listed under "Prerequisites."

Evaluation:

No formal evaluation is included as such in the module. Both formative and summative evaluations are a part of each application of skills activity given in the enabling activities.

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Prospectus

One of the most important tasks performed by teachers of exceptional learners in regular classroom is working with ancillary personnel who also have responsibilities to the learner. A critical part of this task of cooperation is sharing data about the learner with persons in supportive roles. Since there is a variety of positions, agencies or offices represented by ancillary personnel, the teacher must be skilled in obtaining and summarizing data from tests and observations and in asking questions that should be answered by such persons. If the teacher is able to report adequately and accurately to others with whom s/he works, support persons can provide more direct and specific help to the teacher and the learner. This module helps prepare you to work more effectively with ancillary personnel by providing you with a variety of procedures for reporting learner progress to such persons.

Part I

Student Objectives	Enabling Activities
1. The student will distinguish those academic and non-academic behaviors which should be communicated to a fellow professional upon referral.	
2. Given a page of standard scores and percentile ranks from standardized survey or diagnostic tests of achievement, the student will identify the subtests in which deficits appear.	1. The student will construct a profile sheet of these scores plotted on a graph, connected by lines, and compare them with a line drawn through the present class placement. Scores below present class placement would be identified as deficits. 2. Reading 1, Alper and White, pp. 445-455.
3. Given a set of direct products from independent seatwork assignments, the student will identify patterns of errors in phonics skills, arithmetic computation, spelling and handwriting.	1. The student will analyze these errors separately and through the use of task analysis will identify the error patterns. Actual seatwork papers will be xeroxed and distributed to the students for practice. 2. Reading 2, Alper, Nowlin, et al., pp. 151-164.
4. Given a set of graphs and charts depicting progress through teacher directed instruction, the student will identify specific skills in reading, arithmetic, and spelling which are not responding to instruction.	1. Practice with five actual and simulated graphs of pupil's progress in specific skill areas.

Student Objectives (cont.)	Enabling Activities (cont.)
5. Given a standard, brief classroom observation form which shows time sample on duration recording of behaviors during seatwork, the student will identify those behaviors which might interfere with academic progress.	1. Practice with five simulated time charts plus actual experience recording time samples on three pupils. The student will list those behaviors which appear to be impeding academic progress in the order of priority of interference. 2. Reading 3, Forness and Esveldt, pp. 382-385.
6. Given a list of social and emotional behaviors of five different children in classroom and playground situations, the student will identify those behaviors which might interfere with academic progress.	1. A grid of behaviors and their implications for that child will be constructed. 2. Reading 4, Nelson, pp. 501-507.
7. Given a list of visual behaviors of five different children in classroom situations, the student will identify those behaviors which might indicate inadequate vision.	1. The student will list these visual behaviors for each child separately in a grid with the implications for the classroom congruent to each one. The student will circle those visual behaviors which might indicate inadequate vision.
8. Given a list of behavioral responses to auditory stimuli in the classroom for five children, the student will identify those behaviors which might indicate inadequate hearing.	1. The student will list the behavioral responses separately for each child in a grid and will compare each one with the types of auditory classroom demands made upon the child in the present classroom setting. The behaviors which might indicate inadequate hearing will be circled in red.
9. Given a set of classroom test scores and observational data for five specific children, the student will identify five priority behaviors for each child which warrant professional evaluation.	1. The student will plot a profile graph of the classroom test scores (Objective 1) for each child and compare this with a list of observational data. Priority behaviors will be circled in red and then listed in hierarchical order for possible professional evaluation. 2. Reading 5, Lazar and Lazar, pp. 175-180
10. Given a list of five priority behaviors which warrant professional evaluation, the student will determine those behaviors which might respond to classroom intervention in place of referral.	1. The student will list the five priorities in a grid with the suggestions for a possible classroom intervention and/or alternative listed next to each priority. 2. Reading 6, Loe, pp. 467-472.

Part II

Student Objectives	Enabling Activities
11. The student will formulate a referral question or set of questions about behaviors which warrant referral for evaluation.	1. Reading 7, Hiltbrunner and Vasa, pp. 167-172.

Student Objectives (cont.)	Enabling Activities (cont.)
12. Given a list of reading behaviors which warrant referral, the student will formulate one question which the teacher could not answer from classroom assessment.	1. The student will construct a grid of reading behaviors with possible *classroom* solutions listed next to each behavior. Those reading behaviors not answered by the present classroom solutions will be circled in red and rewritten as a referral question.
13. Given a list of mathematics behaviors which warrant referral, the student will formulate one question in which the teacher could not answer from classroom assessment.	1. The student will construct a grid of mathematics behaviors which warrant possible referral with possible *classroom* solutions listed next to each behavior. Those math behaviors not answered by the present classroom solutions will be circled in red and rewritten as a referral question.
14. Given a list of spelling and handwriting behaviors which warrant referral, the student will formulate one question which the teacher could not answer from classroom assessment.	1. The student will construct a grid of spelling and handwriting behaviors which warrant possible referral with possible *classroom* solutions listed next to each behavior. Those spelling and handwriting behaviors not answered by the present classroom solutions will be circled in red and rewritten as a referral question.
15. Given a list of a pupil's responses to visual and/or auditory stimuli which warrant referral, the student will formulate one question which the teacher could not answer from classroom assessment.	1. The student will list the pupils' responses to visual and/or auditory stimuli which warrant referral into a grid with possible classroom solutions listed next to each behavior. Those visual and auditory behaviors not answered by the present classroom solutions will be circled in red and rewritten as a referral question.
16. Given a list of a pupil's social and emotional responses which warrant referral, the student will formulate one question which the teacher could not answer from classroom assessment.	1. The student will list the pupil's social and emotional responses which warrant referr into a grid with possible classroom solutions listed next to each behavior. Those social and emotional responses not answered by the present classroom solutions will be circled in red and rewritten as a referral question. 2. Reading 8, Lovitt, pp. 138-150.
17. Given a list of questions about a pupil which could not be answered by classroom assessment, the student will identify relationships among two or more questions and combine them into one question.	1. The student will study the list of formulated referral questions and will rewrite them into one or two questions. Simulated information for five children will be used for practice.

Part III

Student Objectives	Enabling Activities
18. The student will formulate a letter of referral for a specific pupil.	1. Reading 9, DeGenaro, pp. 558-563.
19. Given cumulative records and health records from a school nurse, the student will incorporate available information in regard to medical, developmental, social and educational history of the child into a one-half page section entitled *Background*.	1. The student will follow the model of five previously written records of background information when writing this one-half page section entitled *Background*.
20. Given a list of classroom procedures, texts and supplementary materials in use, reinforcement systems, daily schedule and groupings for instruction, and floor plan of the classroom, the student will describe the situation in which the child is expected to learn, in a one-half page section entitled *Classroom Conditions*.	1. The student will follow the model of five previously written records of classroom conditions when writing this one-half page section entitled *Classroom Conditions*.
21. Given cumulative records, computer printouts of standardized norm-referenced tests, and teacher's records, the student will summarize available test scores, records of progress in skills instruction, analysis of work products and observational data into a single-page section entitled *Classroom Assessment Results*.	1. The student will follow the model of five previously written records of classroom assessment results when writing this one page section entitled *Classroom Assessment Results*.
22. Given a list of interventions which have been attempted, notes on pupil's responses to attempted interventions, observational data on academic and non-academic behaviors, and notes on physical characteristics of a child, the student will summarize pertinent information into a one-half page section entitled *Anecdotal Information*.	1. The student will follow the model of five previously written records of anecdotal information when writing this one-half page section entitled *Anecdotal Information*.
23. Given a list of questions which cannot be answered by classroom assessment, the student will incorporate these questions into a section entitled *Referral Questions*.	1. The student will follow the model of five previously written records of referral questions when writing this section entitled *Referral Questions*.

Part IV

Student Objectives	Enabling Activities
24. The student will present an oral report of a pupil's current status in the classroom to other professionals at a staffing.	
25. Given cumulative records and teacher's records, the student will summarize the pupil's educational history in less than two minutes.	1. The student will practice summarizing three pupil's educational histories in less than two minutes using a timing device (stop watch, kitchen timer, wall clock, etc.).

Student Objectives (cont.)	Enabling Activities (cont.)
26. Given cumulative records, computer printouts and teacher's records, the student will summarize the pupil's grade equivalent or percentile ranks in word recognition, reading comprehension, arithmetic computation, and spelling in less than 2 minutes.	1. The student will practice summarizing three pupil's grade equivalents or percentile ranks in word recognition, reading comprehension, arithmetic computation, and spelling in less than two minutes using a timing device.
27. Given notes of interventions which have been attempted, pupil's responses to attempted interventions, observational data and relevant physical characteristics of a child, the student will summarize and present anecdotal information in less than 5 minutes.	1. The student will practice summarizing three pupil's anecdotal information in less than five minutes using a timing device.
28. Given list of questions which cannot be answered by classroom assessment, the student will summarize these referral questions in less than one minute.	1. The student will practice summarizing the referral questions of three pupils in less than one minute using a timing device.

Readings

1. Alpher, R. and White, O.R."The Behavior Description Referral Form: A tool for the School Psychologist in the Elementary School."*Journal of School Psychology*, 1971, *9*, No. 4, pp. 445-455.

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C. MICHAEL NELSON

Techniques for Screening Conduct Disturbed Children

Abstract: A direct observation technique was used to investigate differences between children classified as conduct disturbed or normal on the basis of ratings given by their regular classroom teachers. It was found that subjects rated as conduct disturbed engaged in significantly more deviant behavior and significantly less task oriented behavior than subjects rated as normal on a 10 item rating scale. The simultaneous comparison of the overt behavior of children differentially rated by their teacher not only serves as a check on the validity of the teacher's judgment, but also provides a technique for observing the conduct problem child in relation to normative classroom behavior, as perceived by his teacher.

RESEARCH has demonstrated that teacher ratings can usually distinguish between average children and those known to exhibit behavioral disorders (Bower, 1960; McCarthy & Paraskevopoulos, 1969; Swift & Spivack, 1969a, b; Ullmann, 1952). Direct observation of classroom behavior has also been used successfully to distinguish between behaviorally disordered and normal children (Werry & Quay, 1968, 1969). However, most of this research has concerned children already identified and educationally segregated and has not focused on confirming the usefulness of teacher ratings and direct observation in the regular classroom, by validating one technique against the other. The purpose of this study was to discriminate between the overt classroom behavior of children differentially rated by their regular classroom teachers.

Teachers were asked to rate their pupils on two behavioral factors. On the basis of these ratings and without the teachers' knowledge, the children were classified by the investigator as conduct disturbed or normal. A direct observation procedure was employed to test the following hypothesis: The overt classroom behavior of children rated as conduct disturbed will differ from that of children rated as average. Corollary A: Subjects rated as conduct disturbed will show a lower frequency of behavior classified as on task than subjects rated as normal. Corollary B: Conduct disturbed subjects will display a greater frequency of behavior classified as total deviant than will their normal peers.

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Method

Subjects

Children in third through sixth grade from four elementary schools comprised the subjects. These children were participating in an ongoing research program conducted by Butterfield and Weaver (1968), involving group personality, intelligence, and achievement testing. The total sample for the present study consisted of 1,316 subjects. Table 1 presents an analysis of the sample by grade and sex.

All of the subjects from this sample were rated by their teachers on two factors of the *Devereux Child Behavior Rating Scale* (Spivack & Spotts, 1966). MA and IQ

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TABLE 1

Grade and Sex Distribution of Total Sample

Grade	*Sex*		*Total*
	Male	*Female*	
3	182	178	360
4	145	167	312
5	176	183	359
6	156	129	285
Total	659	657	1,316

scores from the *Kuhlmann-Finch Scholastic Aptitude Tests* (Finch, 1956) were also available on each subject. All children whose ratings exceeded a multiple cutoff score were identified by card sort and defined as conduct disturbed. From this subsample, a group of 10 boys and 10 girls was selected. Each of these 20 subjects was matched with a control subject of the same sex, CA, MA, and IQ who was also in the same classroom and whose Devereux ratings by the same teacher fell within plus or minus one standard deviation of the mean ratings for the total sample. To facilitate observation, subjects were drawn from only two schools (10 pairs from each school). The subsample consisted of 8 third-graders, 12 fourth-graders, 8 fifth-graders, and 12 sixth-grade students. The efficiency of matching on CA, MA, and IQ was assessed by means of correlated *t* tests. Differences between the groups on these variables were nonsignificant at the .05 level ($t = 0.65$, -0.56, and -1.13 for CA, MA, and IQ, respectively). Table 2 presents data revelant to the groups selected.

TABLE 2

Means and Standard Deviations of CA, MA, IQ, Inability to Delay (ID) and Social Aggression (SA) for Total Sample and Subsamples

Variables	*Total Sample*	*Total Conduct Disturbed*	*Conduct Disturbed Subsample*	*Normal Subsample*
CA				
Mean	120.05	119.49	122.75	121.75
SD	14.09	14.63	15.47	15.73
MA				
Mean	138.24	136.70	134.90	136.20
SD	24.07	26.84	21.43	22.18
IQ				
Mean	114.16	113.13	109.75	111.50
SD	12.80	12.11	8.99	10.74
ID				
Mean	15.86	30.30	32.05	14.95
SD	7.12	3.75	3.91	3.80
SA				
Mean	8.45	16.51	17.15	7.90
SD	3.86	2.00	2.13	1.94

Instruments

Two factor scales of the *Devereux Child Behavior Rating Scale* (Spivack & Spotts, 1966) were adapted for use by classroom teachers. Items measuring inability to delay (ID) and social agression (SA) were compiled into a 10 item rating scale, the Adapted Devereux Child Behavior Rating Scale (DCB). The instructions, scoring scales, and item order of the original Devereux scale were preserved to permit reference to the original norms. Items 1, 4, 7, 8, 9, and 10 measure ID, while items 2, 3, 5, and 6 sample SA.

The ID factor taps "the child's inability to wait for what he wants or to contain or regulate his excitement or mood [Spivack & Spotts, 1966, p. 19]," while the SA factor measures aggressive intent in relation to interaction with others. These factors were selected because they sample most of the behaviors identified or associated with descriptions of conduct disturbed children.

Ratings on ID may range from 6 to 39. Within the normative sample, the mean ratings for normal public school children and institutionalized atypical children were 16.7 (SD = 4.9) and 22.0 (SD = 8.0), respectively. The range of possible ratings on SA is from 4 to 20. The mean of the normal public school group was 8.1 (SD = 2.5), while that of the residential group was 10.5 (SD = 4.3).

Critical score values of 26 and 11 (approximately 2 SD's above the mean) for ID and SA respectively were used to separate conduct problem children from the rest of the sample. All subjects having scores equal to or greater than these cutoff scores on both scales were defined as conduct disturbed. In addition, children scoring within one standard deviation of the mean rating for both ID and SA were defined as normal.

For the collection of overt behavioral data, an altered version of the direct observation technique developed by Madsen, Becker, and Thomas (1968) and later revised by Werry and Quay (1968) was employed. This technique consists of a system of classifying and recording specific overt classroom behavior of an individual child.

CHART 1

Abbreviated Direct Observation Record Form

S1 _____ ID _____ Schl _____ Grade _____ Tchr _____

S2 _____ ID _____

	S	X	→	N	↷	I	V	Ø	//	D	T	t	Z	z	Comments
S1															
S2															
S1															
S2															

KEY

S—On Task
X—Out of Seat
→—Physical contact or disturbing others
N—Audible noise
↷—90° turn, seated
I—Isolation
V—Vocalization
Ø—Other deviant behavior
//—Activity accompanying some other activity which is deviant or not the assigned one
D—Daydreaming
T—Positive teacher-initiated contact
t—Positive child-initiated contact
Z—Negative teacher-initiated contact
z—Negative child-initiated contact

Three major categories are included: on task behavior, deviant behavior, and teacher-pupil interaction. The first category includes an on-off task classification, the second category incorporates nine classifications of deviant behavior, and the last category includes four subcategories of teacher-child interaction. The child is observed for two 20-second periods out of each minute, during which time overt behavior is classified and recorded, using symbols developed by Werry and Quay (1969).

This observation technique was altered to permit simultaneous observation of a matched pair of subjects. The original observation instructions (Werry & Quay, 1969) were used, but a record form was developed which divided the 20-second time cells into smaller cells for each subject and for each category of overt behavior. Across the top of the time cells, symbols for each behavior were printed. Instead of recording a symbol, the observer had only to enter a check in the cell appropriate for the behavior and the child. Each record form contained enough cells for 15 minutes of observation, plus an extra row for recording cell totals. An abbreviated record form is presented in Chart 1.

Procedure

The Kuhlmann-Finch was administered to all subjects as part of Butterfield and Weaver's (1968) ongoing research project. The ADCB was subsequently given to all teachers (N = 60) in the third through sixth grade in each of the four schools. The teachers were asked to rate all children in their classes. A 100 percent return of the rating scale was achieved.

At the time when arrangements for direct observation were made, teachers were informed of the children in the classroom selected for observation as well as the purpose of observation. Each teacher was also questioned regarding classroom rules. Wherever possible, observation periods were scheduled during a study period, when these rules would be most clearly in effect.

The observation procedures were carried out by two observers. Each pair of subjects was observed for a total of 30 minutes. In most cases, the observation occurred during a single period, but when necessary, the period was divided into two 15-minute segments. One observer simultaneously recorded the behavior of each pair of subjects, both to reduce observation time and to include the added control factor of an

identical classroom situation. The subjects were observed in the classrooms of the teachers who had rated them. Due to the low frequency of behaviors in the teacher-child interaction category, as well as some of the behaviors in the deviant category (e.g., isolation, daydreaming), only the on task and total deviant categories were used as criteria for comparing groups. Moreover, as it has been repeatedly demonstrated that frequency, not topography of behavior, differentiates deviant from normal children (Patterson, Shaw, & Ebner, 1969), there seemed to be no point in attempting a more specific analysis.

Interobserver reliability was obtained for five pairs of subjects observed for 15 minute periods. The frequencies of on task and total deviant behaviors recorded by both observers for each of the 10 subjects were compared by means of Spearman rank-order correlations. Reliability coefficients of .997 and .988 were obtained for the on task and total deviant categories, respectively.

The teachers whose students were being observed were asked to rate these subjects again on the ADCB. These ratings were compared with those assigned 2 months earlier, and Pearson's product-moment coefficients were calculated for these 40 subjects. The reliability coefficient of the ID scale was .874, while that of the SA scale was .890.

The hypothesis was tested by entering the direct observation data in a Type III observation-by-groups-by-sex design (Lindquist, 1956) and computing the analysis of variance. The hypothesis was evaluated against the .05 probability level. Since the corollaries were directional, one-tailed tests were employed.

Results and Discussion

Eighty-three subjects, or 6.3 percent of the total sample, were rated above the cutoff scores on both the ID and SA factors of the ADCB, and therefore were defined as conduct disturbed. This percent agrees with most previous estimates (e.g., Rogers, 1942; Ullmann, 1952; Wickman, 1928) of the number of school children having "serious" emotional problems. However, if the identification procedure were not restricted to conduct problems, it is possible that the present study would have found a larger number of children with serious emotional problems than would be expected from earlier investigations.

An interesting finding was the number of girls who were identified as conduct disturbed in the present sample. Previous studies have indicated that boys outnumber girls by at least two to one (White & Harris, 1965) and as much as five to one (Morse, Cutler, & Fink, 1964) in the general population of emotionally disturbed children. When comparisons have been restricted to children with conduct problems or acting-out behavior, ratios have ranged from five to one (Young-Masten, 1938) to as high as nine to one (Bower, 1960) in favor of boys. In the present study, the conduct disturbed group was composed of 15 boys (54.2 percent) and 38 girls (45.8 percent)—figures which are in marked contrast to previous reports.

Overt Behavior Differences

Table 3 summarizes the analysis of main and interaction effects of direct observation data for the subsample of 20 conduct disturbed and 20 normal subjects. It will be observed that none of the between groups comparisons was statistically significant, although the F ratio for the groups classification (conduct disturbed versus normal) approached significance at the .05 level. The analysis of within group effects revealed a significant F for observations ($p < .01$) and for the observations-by-groups interaction ($p < .05$). The observations-by-sex interaction approached significance ($p < .10 > .05$).

TABLE 3

Analysis of Variance of On Task and Total Deviant Behavior for Conduct Disturbed and Normal Subjects

Sources of Variance	*df*	*MS*	*F*	*p*
Total	79			
Between	39	26.88	1.03	NS
Groups (A)	1	108.11	4.16	$< .10 > .05$
Sex (B)	1	2.88	0.11	NS
A x B	1	1.51	0.06	NS
Error	36	26.00		
Within	40	546.99	1.65	$< .10 > .05$
Observations (C)	1	6,534.11	19.67	$< .01$
A x C	1	1,970.11	5.93	$< .05$
B x C	1	1,117.51	3.36	$< .10 > .05$
A x B x C	1	300.31	0.90	NS
Error	36	332.15		

TABLE 4

Analysis of Variance of Simple Effects of Groups by Observations Interaction for On Task and Total Deviant Behavior of Conduct Disturbed and Normal Subjects

Sources of Variance	*df*	*MS*	*F*	*p*	*Eta Squared*
Conduct disturbed vs normal					
On task	1	577.60	22.21	$< .01$	.146
Total deviant	1	1,588.78	59.57	$< .01$	.388
Error	36	26.00			
On Task vs total deviant					
Normal	1	7,040.00	21.20	$< .01$	.137
Conduct disturbed	1	664.23	1.20	NS	
Error	36	332.15			

Since differences between the conduct disturbed and normal subjects in observed classroom behavior were of major experimental interest, an analysis of simple effects for the observations-by-groups interaction was performed. Table 4 presents this analysis. The differences between the conduct disturbed and normal Ss for the on task and total deviant categories are demonstrated by the highly significant F ratios for the comparison of groups at each level of observation. Furthermore there was a highly significant difference between the frequency of behavior categorized as on task and the frequency of behaviors in the total deviant category for the normal group, but not for the conduct disturbed subjects. Figure 1 illustrates the interaction between groups and observation categories. As the figure demonstrates, normal subjects engaged in significantly more task oriented behaviors and significantly fewer deviant behaviors than conduct disturbed subjects. Moreover, for the normal subject task oriented behavior was significantly more frequent than behaviors categorized as deviant, while the frequency of deviant behavior was almost as great as task oriented behavior among conduct disturbed subjects.

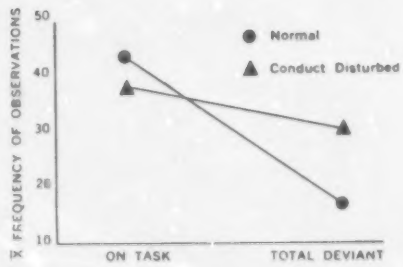

FIGURE 1. Interaction of Means of Normal and Conduct Disturbed Subjects for On Task and Total Deviant Behavior.

Although the observations-by-sex interaction failed to reach significance at the .05 level, it appeared to be large enough to warrant further inspection, particularly in view of the large number of girls identified as conduct disturbed in the present investigation. It was further suspected that although teachers tended to assign equally high ADCB ratings to boys and girls, the frequency of deviant behaviors would be less for girls than for boys, while the opposite trend would be noted for task oriented behavior. Figure 2 presents the observations-by-sex interaction, disregarding the conduct disturbed versus normal classification. As the figure shows, an interaction did occur. Girls tended to engage in more on task and less deviant behavior than boys, regardless of group classification. Nevertheless, as the interaction failed to reach significance, interpretations of a more general nature cannot be made. In addition, the observations-by-groups-by-sex interaction was clearly nonsignificant, suggesting that sex differences within the conduct disturbed and normal groups had little influence upon the differences between these groups in on task or total deviant behavior.

To assess the magnitude of the observed

271 272

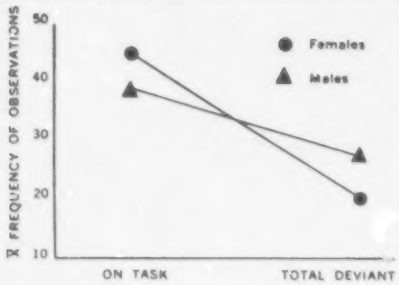

FIGURE 2. Interaction of Means of Male and Female Subjects for On Task and Total Deviant Behavior.

effects in the observations-by-groups interaction, the eta statistic (Friedman, 1968) was calculated from the significant F ratios obtained for between group comparisons in the analysis of simple effects. Eta corresponds to a coefficient of correlation, and eta squared is interpreted exactly as the coefficient of determination, r^2. That is, eta squared indicates the percent of variance accounted for by a given experimental effect or observation. Eta squared values are reported in Table 4. Behavior in the on task category accounted for 15 percent of the variance between conduct disturbed and normal subjects, while behaviors in the total deviant category accounted for 39 percent of the variance between these groups.

Hypothesis supported. Taken together, the above analyses indicate substantial support for the hypothesis. Conduct disturbed children, as defined by scores on the ADCB, did tend to differ from their normal peers in overt classroom behavior. Moreover, the data confirmed the predictions: Conduct disturbed children displayed a lower frequency of task oriented behavior and a higher frequency of behaviors classified as deviant than did normal children of the same age, sex, and mental ability. Although there was a general tendency for girls to engage in more task oriented and less deviant behavior than boys, this tendency did not exceed chance expectations.

The significant difference between conduct disturbed and normal subjects in overt behavior is somewhat in contrast with an early study by Young-Masten (1938) which found that direct observation data did not differentiate children rated as behavior problems by teachers from children rated as average, except in the category of aggressive behavior toward peers. Contrary to the conclusions drawn by Young-Masten, the results of this investigation strongly suggest that direct observation procedures are an effective method of identifying and describing conduct disturbed children. This conclusion agrees with those made in recent studies of the overt behavior of children with conduct disorders (Madsen, et al., 1968; Werry & Quay, 1968, 1969).

The ability to differentiate children classified by ADCB ratings on the basis of data taken from direct behavioral observation also provides evidence for the validity of the ADCB. Apparently, the inability to delay and social aggression factor scales are both reliable and valid measures of important aspects of children's classroom functioning.

Teacher accuracy. The demonstration that direct observation data corroborates teacher ratings also agrees with Bower's (1960) conclusion that teachers are able to identify emotionally handicapped children in their classrooms with a high degree of accuracy. In addition, the validity of the ADCB supports Ullmann's (1952) observation that teacher ratings are better predictors of maladjustment when the resultant behavior is acted out. However, this should not be taken as evidence that teacher ratings alone are sufficient for identifying conduct disturbed children. The rating procedure was based upon individual teachers' standards of "normal" behavior. Therefore, in addition to the obvious possibility of an error in the rating assigned to a given child, it is possible that a child could be assigned a high rating simply because he represented the upper end of the distribution of an unusually docile class.

These results do suggest that the most appropriate place to seek differences between children classified on the basis of ratings of overt behavior is in observable behavior. The further comparisons are removed from an overt behavioral level, the less likely such comparisons are to reflect differences between groups or individuals.

Limitations. It should be mentioned that all generalizations made from the present investigation are limited by the nature of the sample. Subjects were drawn from a population almost exclusively consisting of children from a Caucasian, middle to upper middle class environment. Thus, the subjects in the sample tended to be somewhat more intelligent, from better homes, and have parents with higher educational and occupational attainments than children more closely resembling a cross section of American culture. Generalizations should therefore be very, very cautiously applied to children differing greatly from the present sample in any important characteristics.

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Self-Management Projects with Children with Behavioral Disabilities

Thomas C. Lovitt, Ed.D.

This report includes seven projects; each is concerned with one or more components of self-management. (1) A pupil was instructed to self-schedule, -correct and -chart. He was also allowed to specify his own contingencies. Throughout the study data were obtained regarding his performance in several academic subjects. (2) Data were obtained in math and reading. During some periods the teacher selected which subject should be initially scheduled; at other times the pupil selected the order. Data from the two conditions were compared. (3) Data were gathered with self-scheduling as a contingency: a pupil worked in a phonics program during conditions when (a) the teacher scheduled the subjects and (b) the pupil could earn the privilege of scheduling. (4) and (5) involved self-recording of troublesome behaviors. During the first condition of these projects the teacher recorded the behaviors, while during the second condition the pupils recorded their own behaviors. Data between conditions were compared. (6) The self-specification of contingencies was assessed. During certain conditions the teacher specified the contingencies, whereas this responsibility was assumed by the pupil at other times. The data from the two conditions were compared. (7) A group of students were taught to self-correct, -count, -time, -chart, and -evaluate. Throughout the project data were kept regarding their performances in reading.

Children are taught to make innumerable discriminations. They are taught to discriminate visually – between blue and red, one and two, A and B. Meanwhile, they are taught to discriminate orally – between many sounds which vary as to pitch, rate, timbre, duration, and intensity. Later, they are taught to process and arrange these abstract visual and oral stimuli in order to obtain complex information and to communicate meaningfully.

The teaching strategy to assist pupils to acquire such skills is comprised basically of selecting, scheduling, presenting, confirming, reinforcing, recording, and evaluating. A skill is *selected* to be developed. A time is *scheduled* to teach that skill. Stimuli are *presented* or offered to the pupil. The performer's responses to these stimuli are *confirmed* in one manner or another. Contingent upon certain types of responses, the pupil is *reinforced*. The pupil's responses are *recorded*. Finally, the performer's relationship with the program is *evaluated*.

Traditionally, teachers have been assigned or have assumed the responsibility for administering each of these educational components. In elementary schools teachers have, except in rare instances, selected what was to be taught, when it was to be scheduled, how the material was to be presented, how the pupil's behavior was to be confirmed, reinforced, recorded, and evaluated.

Although the pupil is allowed to assume

more responsibilities for his education as he advances from elementary school to college, all too often the manner in which these duties are offered is random and unsystematic. That self-management behaviors are not systematically programmed appears to be an educational paradox; for one of the expressed objectives of the educational process is to create individuals who are self-reliant and independent. Certainly the dual responsibility of the educational system should be to furnish the individual with a vast repertoire of performance skills *and* to provide him with the principles of self-management.

Certain steps are necessary to set up a curriculum designed to teach self-management: (1) the elements which comprise that process must be specified; (2) those components must be sequentially arranged; and (3) the skills must be systematically taught. When instruction is devoted to the development of self-management behaviors, as well as to the acquisition of academic skills, it is possible that individuals will be optimally capable of using the academic skills that were learned.

Apart from the major purpose for teaching self-management behaviors (that pupils will become more independent, hence more productive), at least three other reasons for considering such a strategy should be noted. One important reason is that when pupils handle certain of their affairs they can assist their teachers. Obviously, if teachers are expected to obtain, without help, daily measures from 30 children in three or four academic areas, their patience, zeal, and ingenuity will soon be exhausted. But in some classrooms children have been taught to calculate the time they spend on certain programs, to total their correct and incorrect answers, and to divide these frequencies by the time spent on a program to obtain performance rates – correct and incorrect. Other children have learned to chart their rates and to evaluate their own performance.

Another reason for instructing children to manage their own affairs relates to the academic curriculum. When children are taught to correct, count, chart, and evaluate their own performance, they are learning in functional ways to add, divide, tell time, and compare. The amount of pupil involvement and the extent to which this involvement is incorporated into the math and science curriculum is dictated only by the ingenuity of the teacher. Some elementary-school-age pupils, diagnosed as learning disabled, have, for instance, learned to use the C and D scales on a slide rule, and are thus enabled to compute their own rates. Other pupils, by plotting these rates on semi-log charts, have learned about proportion and equivalence. Still other children have learned to use a stop watch, thus developing some concepts of duration. Many children have discovered basic scientific skills – for example, that the specification and recording of a behavior in its current environment is the first step toward understanding that behavior.

The third reason for arranging pupil-management activities is that often children are highly motivated when allowed to assume portions of their instructional responsibility. Several projects have been conducted wherein troublesome behaviors have been decelerated and performance at a low rate has been accelerated by scheduling various pupil-management components. Several such projects will be described in this report.

Following are seven projects concerned with various aspects of pupil-management. All of the projects deal with boys and girls of elementary school age who displayed academic or social disabilities. The dependent measure in all of the projects is responses per minute. In the projects where a behavior such as hits or talk-outs is dealt with, only one measure was kept – the number of incorrect or inappropriate responses. In most of the projects concerned with academic performance two measures are concurrently given – correct and incorrect response rates. In a few of the academic projects only the correct rates are shown (projects conducted a few years ago when only correct rate data were charted). Two symbols are used in the following charts: circles and triangles. The circles pertain to behaviors whose rates should be increased, while the triangles refer to behaviors whose rates should be decreased.

In the first project a boy was required to

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administer an increasing number of pupil-management behaviors. The second study is concerned with the effects on a pupil's performance when he is allowed to select the program he wants to work on, either math or reading. The third project regarded scheduling as a contingent event; dependent on academic performance in one activity, the pupil earned the option to schedule other academic subjects. The fourth study presented data about a girl recording her talk-outs. In the next project a boy recorded his hits. In these two projects the comparative effects of pupil- and teacher-recording were reported. In the sixth study the effects of the contingency manager – the teacher or the pupil – were analyzed. The final study, with a group of second graders, described how those children were taught a number of self-management skills as they worked on reading materials.

PROJECT # 1. PUPIL SCHEDULING, CORRECTING, CHARTING, AND SPECIFYING CONTINGENCIES IN ACADEMIC AREAS

This study was an initial attempt to define, sequence, and instruct a number of behaviors leading toward self-management. The study further attempted to determine the effects, if any, of performing self-management requirements on the development of academic skills. Throughout this study the academic performance of one pupil was measured by recording daily response rates. Consequently, as more and more management responsibilities were allocated to the pupil, their effects on the acquisition of academic information were ascertained.

The pupil in this study was a 12-year-old boy who attended a class at the Experimental Education Unit (EEU). Daily records that indicated correct answers per minute were kept for him in each subject matter area – reading, mathematics, spelling, writing, language arts, and social studies. A composite response rate was also calculated each day be summing all of the correct answers and dividing by the total time he worked on academic programs.

This study comprised nine phases. The first phase was a baseline assessment that simply provided an indication of how the pupil performed when no self-management behaviors were required. During the subsequent eight phases the pupil was required to engage in a series of self-directed activities.

Following the six-week period of baseline assessment, the first self-management step was programmed. During this time the pupil was allowed to schedule his morning and afternoon assignments. The teacher specified the work in reading, math, and writing that had to be accomplished during the morning (¾ of his program) and which language, spelling, and social studies assignments had to be completed during the afternoon (¼ of his program). The pupil was then free to arrange his morning and afternoon schedules. During the morning he could sequence reading, math, and writing in any order that he chose. The only requirement was that they be completed prior to lunch. If assignments were completed an hour before lunch, he was free to do as he pleased. If they were not completed before lunch, the pupil was not allowed to eat until they were finished. The same arrangement was in effect during the afternoon, except that now he had to finish the afternoon assignments before going home.

Following this five-week phase of self-scheduling the morning and afternoon activities, the pupil was allowed to schedule his entire day. Throughout this three-week phase he was provided with his total day's assignments at the beginning of each school day. He could arrange them as he saw fit; finish everything in the morning, then loaf the rest of the day; rest during the morning and complete everything in the afternoon; or work steadily throughout the day. During this phase lunch was not arranged on a contingent basis; however, the pupil could not leave school until *all* academic requirements were completed.

With the scheduling option still in effect, the pupil was required, throughout the next phase, to correct his own answers. The teacher provided the pupil with manuals and other guides in each of the subject matter areas and instructed him to correct his answers.

During the fourth step toward self-management the teacher showed the pupil his academic response rates at the end of each day. She initially told him what had happened that day – whether his performance had improved, was the same, or was inferior when compared with the preceding day. Later, the pupil was required to verbalize his relative performance.

Following this two-week period of showing and discussing the performance record, a folder of graphs was placed permanently on the pupil's desk. In the folder were graphs on each of the six subject areas and a composite graph illustrating total academic rate. Throughout this three-week phase he was encouraged to examine his record of academic performance.

In the next self-management phase an attempt was made to increase the pupil's awareness of his productivity. During this phase, not only was the performance record constantly in view of the pupil, but now he charted his own data in two academic areas – reading and math. At the end of each day the teacher told the pupil his rates and then requested that he plot these data. Initially, the pupil was assisted in plotting his data, but eventually he accurately placed the data points himself.

Following this period of self-plotting in two academic areas, the next step was requiring the pupil to plot his rates in each of the six subjects for a three-week duration.

The final self-management step was to allow the pupil to set his own contingencies in three of the six academic areas. During this period he specified in reading, math, and writing his own ratio requirements.

Figure 1 illustrates the pupil's average weekly academic response rate throughout this nine-phase 29-week study. As indicated by Figure 1, the pupil's performance rate in the baseline phase ranged from a weekly average of 1.8 to 2.7 responses per minute. In the second phase his weekly median rate was 3.0; 3.0 in the third phase; and 3.4 in the next condition. Generally, his performance rates accelerated throughout the study. Exceptions to this overall rate increase were noted in the sixth and seventh phases.

The sequencing of steps in this self-management exploration was based on logic rather than upon empirical data. Future attempts to involve pupils in self-management endeavors might well disclose better arrangements of steps. In that regard it would appear that if a steadily increasing academic response rate is desired, for this pupil at least, phases 6 and 7 should be re-evaluated. Perhaps either these steps were out of order in the sequential arrangement or the steps themselves were ill-defined.

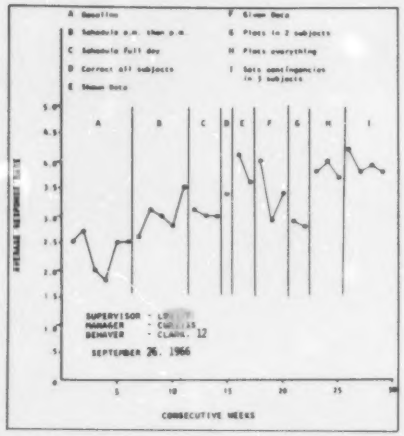

FIGURE 1. Average daily correct response rate throughout nine conditions of the 29-week project. The date, September 26, indicates when the project began. The manager is the individual who conducted the project.

No attempt was made to analyze experimentally the effects of specific management components in this study. To do this, a condition without a component would first be programmed, then with, and finally without. Such a sequence of conditions for each component would have to be arranged. The intent here was simply to demonstrate that, generally, the involvement of self steps is motivating.

PROJECT # 2. PUPIL SELECTS EITHER MATH OR READING

This study was designed to determine the effects of selecting either reading or mathematics on performance rates in those two activities. The project was conducted with two boys from a class for children with behavioral

disorders at the EEU; one pupil was eight years old, the other, twelve.

The first pupil could select whether to work on mathematics or reading for a 20-minute session each day. The mathematics material was from Suppes Book 2A, while Book 7 of Sullivan materials was used for reading.

Following this period of pupil selection, two teacher-selected periods were scheduled. During the first teacher-selected period, the pupil was required to continue for 40 minutes on the academic area he had chosen during the pupil-selection period. In the third period, which lasted for 60 minutes, the alternate academic material was scheduled.

The sequence of periods for the second pupil differed. In the first period, one of teacher selection, the second boy was alternately programmed either mathematics or reading for 30 minutes each day. Mathematics was supplied from Suppes Book 3B and reading from the Sullivan Books 19 and 20.

In the second period, which also lasted 30 minutes, he was allowed to select either reading or mathematics. Finally, for the 30 minutes of the third period the boy was assigned the academic material alternate to that presented in the first period.

Three calculations were obtained each day — one each for mathematics and reading when the teacher selected the program, and one during the pupil-selected period. The results revealed that on 24 of 26 days, the first pupil's performance rate was greater when *he* made the selection of the subject than his rate on the same program when the teacher made the selection. His median correct rates for mathematics and reading when selected by the teacher were .95 and 1.45 respectively, while median rates when he selected were, for mathematics, 1.6 (chosen 11 times) and for reading, 2.4 (chosen 15 times).

The performance of the second lad was similar in that during 17 of 25 sessions his correct rate was greater when he selected than on the same material when the teacher selected the subject. This pupil's median correct rates in reading and mathematics were 1.5 and 1.4 during the teacher-select periods, while his median rates during pupil-select periods were 1.65 for reading (chosen 25 times) and 1.8 for mathematics (chosen only once).

For these two boys it would appear that self-selection was an accelerating variable, and that being allowed to select, even between two relatively low-strength tasks (mathematics and reading), served as a reinforcing event.

PROJECT # 3. PUPIL SCHEDULES HIS SUBJECTS

This project assessed the effects of pupil versus teacher scheduling. The pupil was an eight-year-old boy; the setting was a classroom at the EEU. During the first phase of the project the teacher scheduled all his activities.

Throughout the next phase self-scheduling was contingently arranged. In this phase, if the pupil committed fewer than four errors, he was allowed to schedule five other activities. He could specify, after phonics, the order for the next five activities.

It may be noted from the chart that during the first phase (teacher-scheduling), the correct rate trend decelerated, while the error rate trend accelerated. Throughout the second phase (pupil-scheduling), his performance was more satisfactory; his error rate decreased to a lower rate and his correct rate trend accelerated (see Fig. 2).

This project indicated that pupil-scheduling, when contingently scheduled, is motivating. This is not to suggest that self-scheduling, or for that matter, any other pupil-management component is universally reinforcing for pupils, any more than are other types of consequences. More important, it could be that, possibly, a new set of potential reinforcers is available. As tangible and consumable items, teacher praise and free time have served as reinforcing events for certain pupils in the past; so might the various pupil-management components. If this is true — that pupil-management elements when contingently arranged are at times functionally related to behavior change — the teacher's portfolio of contingency management tactics will be enlarged.

PROJECT # 4. PUPIL RECORDS TALK-OUTS

Throughout the first phase of this project, conducted in a regular fourth grade, the teacher

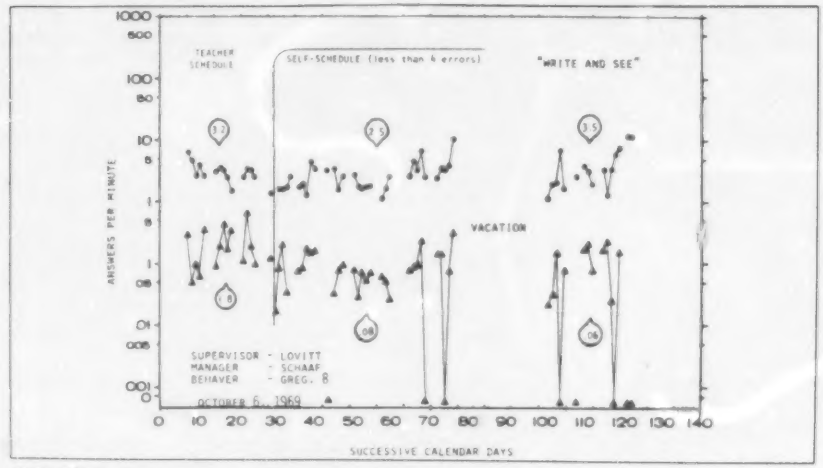

FIGURE 2. Daily correct and error rates throughout two experimental conditions. During this project the pupil worked in the "Write and See" phonics program. The numerals in the teardrops indicate correct and error rate medians. Two sets of medians were calculated in the second phase, one before and one after Christmas vacation.

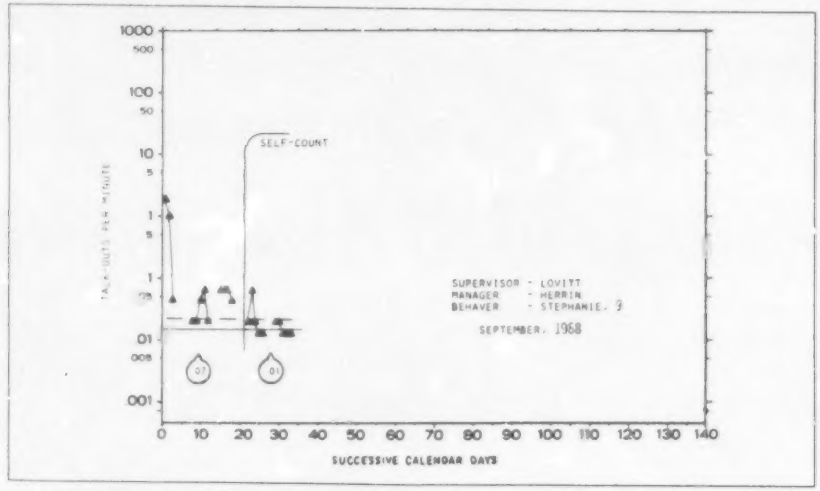

FIGURE 3. Daily rates of talking out in the two conditions, teacher count and pupil count. The broken horizontal line is a record floor. This indicates the time of a session and the lowest rate (except zero) at which a behavior could occur. The record floor is determined by dividing one by the time of the session. In this project the session time was 45 minutes, therefore the record floor was placed at .002 (1 ÷ 45). The solid line is the zero line. This line is drawn below the record floor. A plot on the record floor indicates that one behavior had occurred. A plot on the zero line meant that no behavior had occurred.

recorded the frequency of talk-outs of a nine-year-old girl. Although the girl knew the teacher was checking one of her behaviors, she didn't know which one. These data were recorded for 45 minutes each day. The median rate throughout this 12-day phase was .07 or three talk-outs per session. The highest recorded rate in this phase was two per minute on the first day, or 90 talk-outs during the session (see Fig. 3).

In the second phase a card was taped to the girl's desk and she was asked to record her own talk-outs. Each time she spoke out of turn she was requested to make a tally mark on the card. Throughout this phase, if the girl forgot to tally when she talked out, she was reminded by the teacher. Such reminders were rarely necessary. During five of the ten days of this second phase, no talk-outs were observed. On four days only one talk-out each day occurred.

Teachers often ask, in regard to projects such as this, where one person has been singled out and given special treatment, what is done about the other students, don't they feel left out? This does occur; other children do sometimes ask, "Why is Stephanie counting her talk-outs?" Some teachers simply explain to the other children that Stephanie has a special problem and that if attention is directed to that behavior – i.e., counting it – it may help her. The teacher may go on to explain that other children are receiving special help with their speech or reading. One teacher, when asked by some of her children why one of the pupils was counting something, took a different approach and began a self-improvement project for the whole class. She asked all of the children to select a behavior of their own to count and chart. She used their inquisitiveness to start teaching children how to select a behavior to record, to count, and to chart.

PROJECT # 5. PUPIL RECORDS HITS

The second-grade boy in this case had the irksome habit of hitting other children when he first arrived at school. Furthermore, most of his aggression was observed at the coat and lunch rack.

During the five-day period of teacher-recording, the pupil's rate of hitting others ranged from two to three per minute, or from 10 to 15 hits during the recording period. Following this initial period of teacher assessment, the pupil was instructed to record his own infractions – each time he hit someone he was to mark it down. The teacher continued to record throughout this period. Following each day the teacher interviewed the child regarding his record. The pupil's rate of hits dropped considerably during this period, from a median rate of 2.2 in the initial phase to 1.0 in the second condition (see Fig. 4).

A third phase was initiated by the pupil himself. On the thirteenth day of the project he tore up his tally sheet and announced he would no longer record his hits! The teacher agreed, but she continued to monitor his behavior during this early morning period. The data throughout this third phase revealed that his hitting was totally extinguished – for five successive days the pupil's hit rate was zero.

Self-recording had a positive effect in this case, similar to those effects noted in other pupil-recording projects. However, recording in most of the other instances appeared to be reinforcing, whereas in this instance self-recording was apparently a punishing event. His performance was far better when he was not self-recording than when he was.

Some children associate records with negative behaviors; they have learned that when certain of their actions are recorded, they will, at a later time, be punished. This was true in a project conducted a few years ago in a central area junior high school in Seattle. When pupils were asked to record their questions and answers during a discussion group, their rates fell drastically. When asked why, they said that in the past when their behaviors were recorded they were punished.

PROJECT # 6. PUPIL SPECIFIES CONTINGENCIES IN ACADEMIC AREAS

This study* was concerned with the comparative effects of teacher or pupil specified

*This study, by Lovitt and Curtiss, was published with the title, "Academic response rate as a function of teacher- and self-imposed contingencies," in the Journal of Applied Behavior Analysis.

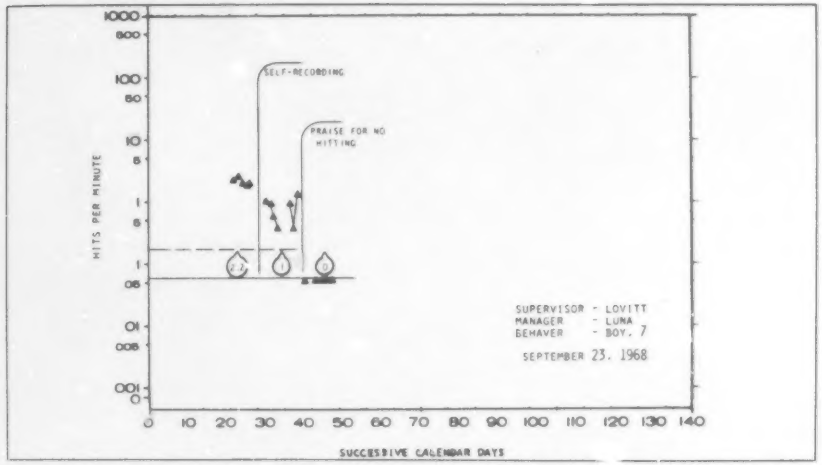

FIGURE 4: Rates of hitting throughout three conditions: teacher record, pupil record, and teacher praise.

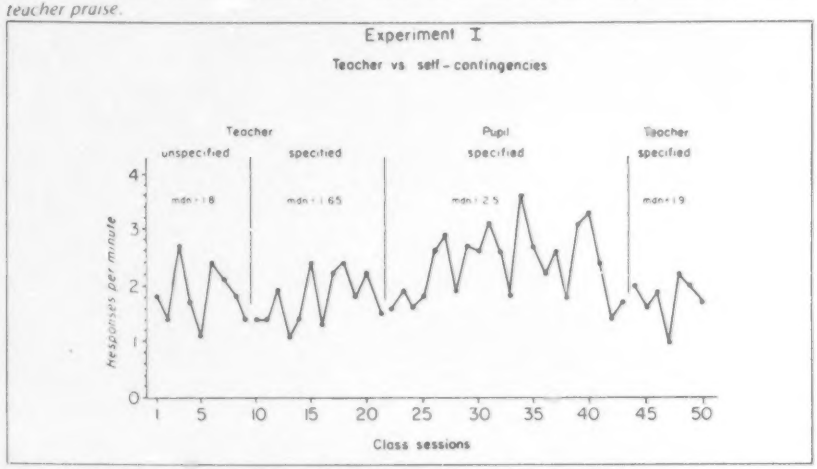

FIGURE 5: Daily response rate throughout Experiment I.

contingencies. The pupil in this study was a 12-year-old boy in a class at the EEU. The investigation consisted of three separate experiments – two that manipulated the contingency manager, and one that manipulated magnitude of reinforcement. During Experiment I, baseline data relevant to the pupil's academic response rates were obtained for nine days. Each day a response rate figure was calculated that represented the boy's performance in all of his subject matter areas. Throughout this period no attempt was made to explain to the student the response per point ratio in each academic area.

Following this baseline period, the next phase of the study was instituted. It was the intent at this time to instruct the pupil about the relationship between correct answers and

contingent points. Each day in this 12-day stage, the teacher verbally explained the contingencies and placed a written copy on the boy's desk. The contract was composed of nine agreements, each of which had a response per point ratio. For example, the pupil was granted two points for each page read and one point for ten correctly answered problems. As he completed each academic assignment, he was shown how many responses had been made and was asked to calculate how many points were earned.

In the next condition, the copy of the response-point requirements was removed from the pupil's desk and he was asked to specify his own payment for each of the nine areas. These new specifications were copied on a card and attached to his desk. Finally, in the last phase, which lasted seven days, the teacher-imposed contingencies were again in effect.

After a period of four weeks, which separated the academic quarters at the University of Washington, Experiment II began. Procedures for this experiment were exactly like those in Experiment I. Teacher contingencies were explained, written out, and attached to the student's desk in Phases 1 and 3, while during Phase 2 the pupil's contingencies were in effect.

Following this replication study, Experiment III was conducted. Since during Experiment II the pupil had altered all the teacher-imposed requirements to grant himself more points per response, it was necessary to determine whether being able to specify his own contingencies had affected the academic increase or whether this gain was due to the increased payoff. Experiment III, therefore, consisted of three phases: (1) the teacher specified the response per point requirements she had placed in effect throughout Experiments I and II; (2) the teacher specified the requirements that the *pupil* had instituted during Experiment II; and (3) the teacher again specified her original requirements. The only difference between Experiments II and III was that in Experiment III the teacher imposed the contingency requirements throughout, whereas in Experiment II, the pupil set his own contingencies during Phase 2.

The data from these experiments indicated that, for this boy, self-specified contingencies were associated with increased academic response rate. This was evidenced in Experiments I and II, since during the periods when the pupil specified the contingencies, his median performance rate was higher than during Phases 1 and 3, the periods when the teacher imposed the contingencies. In addition, the data from Experiment III revealed that the response rate was due to manipulation of the contingency manager and not to reinforcement magnitude (See Figs. 5, 6 and 7).

PROJECT # 7. PUPILS' CORRECTING, COUNTING, TIMING, CHARTING, AND EVALUATING PERFORMANCE

The pupils in this study were nine second graders. During the first phase of this project, for one hour each day, the students attended a demonstration classroom. The dual purposes of this project were to teach the children certain reading skills and also a number of pupil-management behaviors.

The reading program used throughout the project was the Sullivan Programmed Reading Series. The procedures used to instruct reading and to develop pupil-management competencies will be separately discussed.

To instruct reading each pupil was initially assigned to a Sullivan [illegible]-Primer. The pupils, in working through the books, wrote their answers on a data sheet rather than in the readers. They wrote a response to one frame, pulled down the slider that covered the answer and checked their response. If their response was correct, they moved on to the next frame; if incorrect, they crossed out the response, wrote in the correct answer, then advanced to the next frame.

At the completion of each Sullivan book the pupil was requested to read the new words introduced in that book. If he could read 90 percent of the words, he was advanced to the next book. If his score was less than 90 percent he was required to go through that book again. Before a pupil began a new book, he was pretested on the new words from that book.

Each reading session ran for about 40 minutes. Following the reading, the pupils were

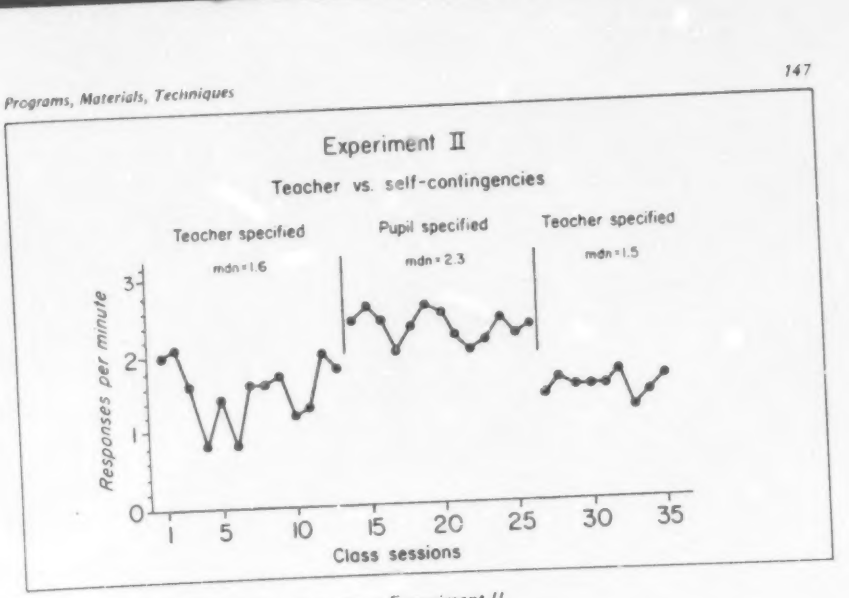

FIGURE 6: Daily response rate throughout Experiment II.

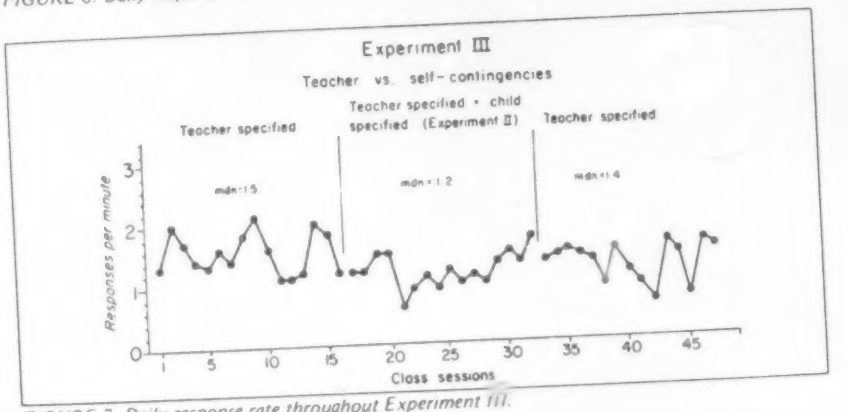

FIGURE 7: Daily response rate throughout Experiment III.

free to play for about 20 minutes. Following this, they returned to their regular classrooms.

A data procurement sheet was provided the children; on this sheet they were required daily to record several bits of information. The data sheets were useful in teaching certain pupil-management steps. First the children were requested to write their names on the top line of the sheet. Then they were instructed to write the day's date on the second line. On the next line the pupils were required to copy the time they began working. A digital clock was used so the pupils copied the numerals – e.g., 10:15. They were then instructed to copy on another line the time they finished working on the program.

The children also wrote each answer on the data sheet and placed a mark beside it which indicated whether it was correct or incorrect. They were told to mark a "+" after correct answers and a "0" if the answer was incorrect. Next, the children were taught to count the

number of correct and incorrect answers and place these totals on the appropriate line on the data sheet.

In order to teach the children to calculate the total time they worked on the reading program, a "time finder" was introduced. The time finder was a large "slide rule" constructed of tagboard and attached to the chalkboard. The stationary portion of the rule was marked off in minutes; 10:00, 10:01, 10:02 to 11:00. On the movable part of the rule were the numerals 1 through 60. To determine the time involved on the program, the pupil matched the numeral zero on the movable slide to the minute on the stationary slide that he began working. At the end of the program he noted the ending time on the stationary slide and read the total time from the movable slide. The pupils wrote this total time on their data sheets.

The pupils were then shown the charts on which their correct and incorrect rates were plotted. The teacher explained that the "●" indicated correct rates and the "▲" referred to incorrect rates. The teacher taught the pupils the rate lines – e.g., where 1, 2, 10 were located. Next, she taught them the day lines – i.e., which lines pertained to Monday, Tuesday, etc. After each session the children pointed to the place on the chart paper where their rates should be entered. They also read from the charts their rates of the day before. The children were then taught to evaluate their performance by commenting on the relative change in their correct and incorrect rates, saying, for example, that their correct rate was up from yesterday and their incorrect rate was down.

Next, the children were instructed to calculate their correct and incorrect answer rates. To do this they were shown how to use a "rate plotter." This device was a ruler whose numerals were like the abscissa of the semi-log chart. To calculate rate, the pupil first located the line on the plotter that corresponded to the time spent on the program. He then found the line on the chart paper that corresponded to the total number of answers (either correct or incorrect). He then matched those two lines, one from the rate plotter and one from the chart paper. Finally, he located the numeral "1" on the rate plotter and read the adjacent number from the chart paper. That number was his response rate.

The children were taught the pupil-management procedures in the demonstration class over a period of 23 weeks. At the end of that time the demonstration class was phased out and the students were returned to their regular classrooms. In their classrooms they continued working in the Sullivan program and continued to exercise the pupil-management responsibilities learned in the demonstration classroom. Apart from their being with more children in their regular classes than in the demonstration class, the other procedures remained the same.

After the pupils were in their regular classes for three weeks, the third phase of the project commenced. Now, the demonstration classroom was used as a contingency; the children could earn entry to the classroom contingent on their reading performance in the regular class. They could earn minutes for a certain number of correct answers and for perfect performance.

During the first phase of this project when the pupils were in the demonstration class, their correct rate medians ranged from .33 to 4.5 responses per minute. The error rate medians ranged from zero to .5 responses per minute. The mid-median correct rate of this phase was 2.3 correct answers per minute; the mid-median incorrect rate was .05.

During the second phase when the second-graders were returned to their regular classrooms and when no contingencies were in effect, the group performance continued to improve. Their mid-median correct rate was 2.9 responses per minute, while their mid-median incorrect rate was .03.

In the third phase, when the children were in their regular classrooms and access to the demonstration class was arranged as a contingency, the data revealed that the mid-median correct rate remained at 2.9 responses per minute. The mid-median incorrect rate decelerated to .0 responses per minute. Figures 8 and 9 show group data from this project.

Throughout this study the pupils timed their own performance, corrected and totaled their responses, described and evaluated their performance, and plotted their own data. In addition to developing these self-management skills and learning a great deal about reading (most of the children completed 10 Sullivan books at 90 percent accuracy while in the demonstration class), the children in this class could verbalize their activities. On several occasions when visitors came to the demonstration class, the children explained how the class was conducted – that they corrected and

285

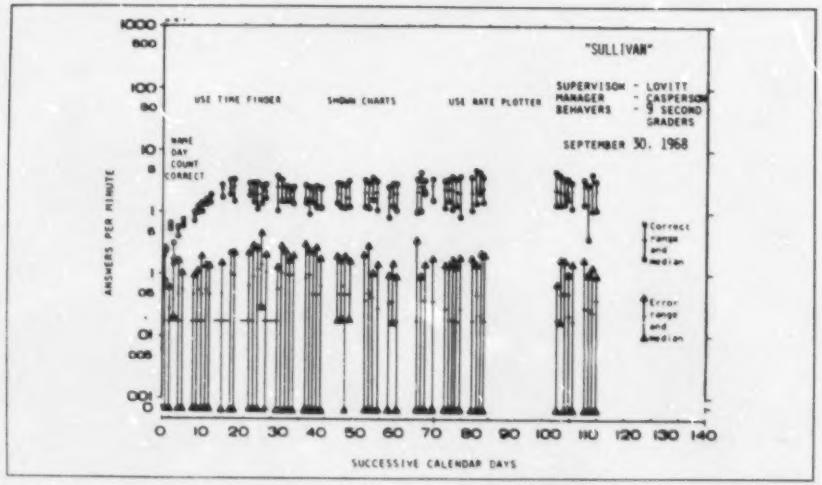

FIGURE 8: Range and median reading responses throughout the first semester for the nine pupils. Pupil-management components and when they were scheduled are indicated on the chart.

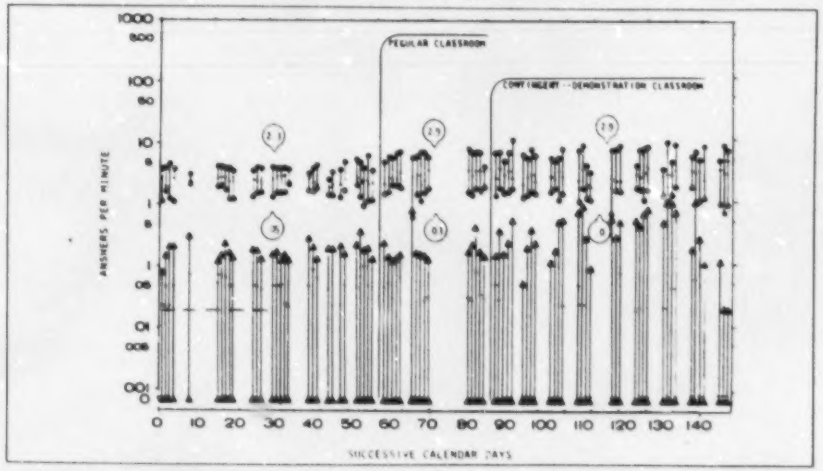

FIGURE 9: Range and median reading responses throughout the second semester. The first medians, 2.3 and .05, refer to the entire first condition of the study which includes the data from the previous figure.

296

counted their answers, timed their performance, etc. These children even did a fair job of describing the six-cycle chart paper to others.

Although teacher training was not the major effort of this project, the regular classroom teachers of these children began to view favorably the process of daily measurement. Before the pupils were returned to their regular rooms, their teachers were shown how to obtain data, to chart, and to evaluate. They were urged to continue the reading program with the children who returned from the demonstration class. The teachers of these data veterans began to see that when daily measurement is obtained, it is possible to monitor pupil progress continuously; they need not wait for an achievement test at the end of a year to reveal progress. Furthermore, these teachers discovered that children appreciated seeing daily evidence of their performance. Many of the teachers stated that their pupils were "much better students" in every respect as a result of the training received in the demonstration class.

DISCUSSION

This set of studies is intended to demonstrate that a number of the behaviors that comprise teaching can be administered by pupils of elementary school age. It was suggested in the introduction that the teaching process consists of seven elements – selecting, scheduling, presenting, confirming, reinforcing, recording, and evaluating. Most of those instructional elements were administered by children in one or more of the studies in this report.

A second consideration I had in mind in presenting this set of projects was to show that pupil-management elements can be associated with a wide range of pupil responses. The responses measured in these studies ranged from talk-outs and hits to reading words and computing problems.

In all but one of the projects the pupil-management components were scheduled non-contingently. In those projects the pupil was allowed, during certain conditions, to count, select, specify contingencies, or engage in some other auto-instructional behavior, irrespective of the rate or quality of his performance. Only in the third project was the pupil-management component contingently arranged. In that project, throughout one condition, the pupil was allowed to schedule some of his activities *only* if his performance in phonics surpassed a certain level of competency.

Future investigations should identify other components of teaching, develop methods to instruct the pupils in these behaviors, and manipulate the various elements to determine their motivational effects. Such research should contribute greatly toward the development of independent individuals. When one considers what a culture would be like whose members had been trained not only to become academically competent, but to manage themselves in a productive way, the prospects for a better society are optimistic!

Lou Rawls, in a current song, makes a strong case for allowing persons to plot their own courses. He believes everyone should be allowed to be a natural man when he sings, "You know, there was a time when if someone told you to do something you did it, bam! right on! no questions asked. It was 'yes sir,' and 'yes ma'am'; you never said 'no,' you know, but you know things are changing nowadays, it's a new day, baby. Folks want to take their own lives into their hands and make their own choices. No longer do they want to go along with the program 'cause everybody says it's right. You know what I mean!" *Experimental Education Unit, University of Washington, Seattle, Washington 98195*

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ACKNOWLEDGMENT

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Informal Diagnostic Procedures: "What Can I Do Before the Psychometrist Arrives?"

Jennie J. DeGenaro, MS

This paper describes informal methods for assessing children suspected of having a learning disability. Diagnostic techniques are described and a simple record-keeping matrix is presented. Information gained from these activities provides significant referral data as well as information to assist the teacher in individualizing instruction in the classroom. Pupil strengths and weaknesses are determined without the use of formal instruments. Normative data are included as a guide to aid teacher expectations.

WHY INFORMAL ASSESSMENT?

In this age of educational specialization, many teachers assume they are not qualified to diagnose children who are suspected of having a learning disability. They feel they must wait for the psychometrist, or another specialist, who may not be immediately available. Meanwhile, valuable time is lost.

Although classroom teachers are often unskilled in formal assessment procedures, the continued rise in the number of children who can be identified as learning disabled makes the generalist an essential member of the diagnostic team. In situ assessments may be helpful.

Smith (1969, p. 10) states that "most university and college teacher-training programs do not provide opportunities for learning informal classroom evaluation." Suggested in this paper are easily learned, informal testing procedures for assessing each child's strengths and weaknesses.

Diagnostic information is essential in planning an individualized program for each child. Also, procedures are needed by the classroom teacher for identifying children who should be referred for more extensive (formal) evaluations. Further, informal assessments place the teacher in the professional position of accepting accountability for the pupils in his or her charge.

Often there is a question about the level of performance a teacher can reasonably expect from a given pupil. Group intelligence test scores for the majority of the children assigned to a teacher are generally available. Thus, rough estimates of each child's potential may be ascertained. Mental maturity tests, such as the California Test of Mental Maturity, may be administered if the above information is lacking. Lerner (1971) suggests three different formulas which can be used to quantify a learning disability. The simplest was provided by Harris (1961). The formula is: RE (reading expectancy grade) = MA (mental age) − 5.

In working with learning disabled children, however, the teacher must be extremely cautious in accepting student potential as measured by standardized instruments or informal assessments. Further, any test is only as good as the professional who uses it. An accurate assessment depends upon seeing the child in a total context. And any instructional program based on these tests must be carefully supervised and monitored, lest the child be misclassified and perhaps unjustly condemned. According to Kirk and Kirk (1971, p. 5), "... some children who appear mentally retarded in the classroom and on intelligence tests may be children with learning disabilities rather than children who are mentally retarded."

Various publications suggest remedial exercises which help to alleviate deficit areas uncovered on such tests as the Stanford Binet Intelligence Scale and the Illinois Test of Psycholinguistic Abilities (see Ferinden et al. 1970). Deficits uncovered by informal assessments may also be remediated in a like manner. Children whose performances fall substantially above or below that expected will need personalized instruction. But these may well be the children who should be considered for referral for more in-depth evaluation, where intra-individual strengths and weaknesses can be more closely analyzed.

WHERE TO BEGIN

Information on each child can be obtained by the classroom teacher without the use of formal instruments. Thus, the teacher will have valuable diagnostic information on every child under her tutelage within a few days.

I shall now discuss informal methods for assessing the fourteen following areas:

(1) Visual discrimination and memory
(2) Auditory discrimination and memory
(3) Letter identification
(4) Writing the alphabet sequence
(5) Phonetic knowledge
(6) Tactual ability
(7) Reversals and rotations
(8) Verbal skills (oral)
(9) Copying at near and far points
(10) Reading levels
(11) Self-concept
(12) Eye-hand coordination and written language
(13) Following directions
(14) Gross motor skills

Testing should begin with the visual and auditory channels, inasmuch as these are the two major avenues for learning. The teacher proceeds until the level is reached where the child's skills "break down." Generally, the instructional program, both developmental and remedial, should begin slightly below the instructional level, thus enhancing the learner's chances for success.

(1) VISUAL DISCRIMINATION AND MEMORY

The teacher can assess the visual modality for discrimination and memory ability. Children suspected of physiological deficits should be referred through the proper channels.

Visual Discrimination. Assess visual-motor ability by displaying geometric forms for the child to reproduce. Present individually a circle, cross, square, triangle, and diamond. Request the child to copy the design. Before he commences, explain that he will have five designs to copy on the page. According to the Gesell Developmental Schedules, children are expected to copy a square at four and a half years, a triangle at five, and a diamond at six.

Visual discrimination is further assessed in a more academic (task-oriented) manner. An exercise such as the following is appropriate for the child with some reading ability. The teacher writes a short sentence of four or five words, and places the sentence at the top of the page. In succeeding "sentences," the words from the original sentence are scattered among similar words. Children are to underline only the words found in the sample sentence. *Example:* "Where was that black cab?" is written at the top of the page. The next sentence may be written as follows: "Where When saw was what that black back cat cab car?" Include six or eight examples with different, but similar words interspersed in the sentences.

A small group of children may be tested in this manner. The time required to complete the exercise and the number of words correctly marked determine response adequacy.

Visual Memory for Letters, Digits and Pictures (objects). To assess memory for letters, print from two to eight letters (not in alphabetical sequence) on each card. Make several sets of cards containing the same number of letters per card. Display the card for one second per

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letter. *Example:* A card containing letters "b, l, c" is displayed for three seconds. Remove the card from view and ask the child to name the letters in the same order as on the card.

To reach the level expected of a nine-year-old on the Detroit Tests of Learning Aptitude, a student must recall all letters presented up to and including five letters in the exact sequence. The child is given four chances to succeed, if needed, at each level.

The visual memory of children who cannot read letters may be assessed by using pictures or objects.

Paste pictures of common objects on cards. Make two sets for each series. Two pictures will appear on the first card, three on the second, four on the third, and so forth, up to ten. *Example:* individual pictures of a dog, cat, mouse, car.

Start the test by displaying a card containing two pictures. Use both sets of cards for each series. Increase the number of pictures per card until the child errs. Allow him to look at the cards for one second per picture. *Example:* Four pictures on a card are studied for four seconds. Remove the card from view. Ask the child to name the objects (pictures) on the card. Consider the response correct regardless of the order given.

To achieve at a seven-year plus level on the Detroit, a child is required to recall all of the items presented, using two sets of each series, through six objects.

(2) AUDITORY DISCRIMINATION AND MEMORY

To assess auditory discrimination and memory, the teacher works with each pupil individually in a room free from noise and distraction.

Auditory Discrimination. Compile a list of word pairs which are alike except for one phoneme. The phoneme that is different occurs at the beginning of some words, in the middle of some, and at the end in others. *Example: men-fen, bend-band, lose-loose.* Words may be actual or nonsense. Occasionally include the same word twice. *Example: walk-walk.*

The teacher calls word pairs. The pupil indicates when the words are different by holding up a paper flag, or by giving some other agreed upon signal. The child faces away from the teacher.

As a normative guide, note that the Wepman Auditory Discrimination Test rates as unsatisfactory the performance of an eight-year-old who makes three errors out of a total of 30 items.

Auditory Memory (words). To test auditory memory, select one-syllable nouns. The same procedures are followed as for Visual Memory for Pictures (above).

Commence with two words. *Example:* The teacher says *dog-bird*. Two sets of words are prepared and presented for each series. The most difficult set includes eight words.

The Detroit has a similar subtest. The child is required, however, to remember more words presented auditorially than objects presented visually to achieve at the same proficiency level.

Auditory Memory (digits). Digits may be used to test a child's auditory memory. The teacher works with individual pupils and calls out a series of digits which the child is to repeat verbatim.

The teacher begins by calling two digits and increases the number called until the child can no longer recall them in the exact order given. *Example:* The teacher calls, "2 – 7," then "5 – 1 – 0," then "6 – 3 – 8 – 4."

According to the Stanford-Binet Intelligence Scale (1973) a seven-year-old is expected to recall five digits forward and three reversed.

(3) LETTER IDENTIFICATION

To determine which pupils do not know the letter names, the following procedure is used. Mimeograph a page of letters not written in alphabetical sequence. This task is accomplished individually. The child names the letters while the teacher records the exact error response above the letter attempted.

(4) WRITING THE ALPHABET SEQUENCE

To determine if the children can write the alphabet and the length of time required, instruct each to write the alphabet using small (lower case) letters. No copy is provided. When each child finishes, the teacher records the time required in minutes and seconds on his paper.

Note the number of omissions, letters out of sequence, and reversals. Mixing of capital and lower-case letters constitutes an error.

There is no apparent agreement in the limited literature available concerning the length of time acceptable for writing the alphabet. From experience, a rough guide as to the approximate time for a child to perform this task, by the end of the third grade, is 38 seconds for girls and 42 seconds for boys.

(5) PHONETIC KNOWLEDGE

Phonetic ability is generally assessed by asking the children to write the beginning sounds or vowel sounds, etc. of letters and words. However, phonetic ability to transfer graphemes (print) to phonemes (speech) should also be assessed. Some children are successful on the first but not the second task.

To test the child's ability in phonics, direct him to write the sound specified in each word. *Example:* "Write the beginning sound in 'sun.'" Give no further clues and allow only enough time for an immediate written response. Select words to assess beginning, medial and final sounds and consonant blends. For the more advanced pupils, include special vowel sounds, final blends, and digraphs. The children may be tested in a group.

The same phonetic elements which were given auditorially should be presented visually.

Prepare a card containing the same elements as above. A marking sheet is necessary for each child. The child names aloud the sounds of the letters. The teacher records incorrect responses. Individual testing is required.

(6) TACTUAL ABILITY

To determine whether a child uses his sense of touch, other modalities are excluded. Blindfold the child, or present objects in a manner to prevent his viewing. Use geometric shapes and ask him to identify the objects by touch. The child reproduces, or names, these forms.

Accurate tactual ability is usually developed in children by five years of age, according to Benton and Schultz (1949).

(7) REVERSALS AND ROTATIONS

To determine whether a child reverses letters (*b* for *d*) or makes rotational errors (*u* for *n*) when identifying letters, the teacher should spend a few minutes with him.

The teacher prints the following letters on a card: *b, d, q, p, n, u, w, m.* An exact copy is used to score each child. The child names the letters as quickly as possible. All incorrect responses are recorded directly above the letter called.

Prepare a card with words which are frequently reversed. *Example: was-saw; dud-bud; men-new; on-no.* Use the same procedures as for letters.

To assess written reversals or rotations, have the child write from dictation the same letters and words, which had been presented visually. Children may be tested in groups to ascertain whether written reversals occur.

(8) VERBAL SKILLS

Identify the pupil who is weak in language skills by requiring individual responses in a structured situation.

Hand the child a common object and ask him to describe it. He is praised for his correct responses. If the child omits the name, color, composition, function or size, these are stated by the teacher on the practice item.

Select a different object, such as a toy car, eraser or other familiar object. Hand it to the child and ask him to describe it, giving no further cues. Record each child's response verbatim. The same objects should be used for testing each child. The child should not hear another's response prior to being tested.

Delayed language development is identified by the quality of responses. The teacher may wish to devise a point system for each relevant descriptor supplied by the child.

The Illinois Test of Psycholinguistic Abilities provides a detailed scoring procedure for a similar measure of verbal ability.

(9) COPYING AT NEAR AND FAR POINTS

Children may have difficulty copying from the board (far-point) but may achieve success when copying from a book (near-point). Teachers are able to assess these abilities in a small group by using the following techniques. Both performances are timed.

To test far-point copying, write 3-5 short sentences on a large chart. Place the chart in front of the group to be tested. Direct the children to copy the sentences on lined paper. Scoring involves accuracy of punctuation, capitalization, spelling, letter formation, organization on the page, and the time required to complete the task.

To test near-point copying, use short sentences as for far-point copying. Sentences are written at the top of the page and mimeographed to allow one page for each pupil.

Blank lines are provided below the sentences for the child to copy the material. Scoring is the same as for far-point copying. The teacher should compare the child's far- and near-point samples for an intra-individual measure.

Slingerland (1970) states that a seven-year-old who has received "one year of adequate instruction and practice" should be able to copy satisfactorily.

(10) READING LEVELS

A teacher should be aware of the reading material that is appropriate as to level and interest for her pupils.

The informal reading inventory is effective and available, and should be used. The directions for giving an IRI are found in most college textbooks on the teaching of reading. The material is mimeographed to allow a sheet for each child tested. Each teacher should use an inventory based on the basal series she plans to use.

Using Goodman's (1973) miscue analysis procedure, in conjunction with the IRI, enables the teacher to gain further insight into each child's reading ability.

The "cloze" technique may be used to sample silent-reading comprehension for a group of children. The "cloze" procedure is a technique whereby words are omitted at predetermined intervals; the child is expected to fill in the missing word by using the context.

To use the "cloze" procedure, the teacher selects a parallel paragraph, or page, to that used in the oral reading inventory. Omit every fifth word and draw lines of equal length to reflect each missing word. Direct the child to read this and to fill in the blanks. The exact word, when supplied, is preferable; however, synonyms may be accepted as correct.

(11) SELF-CONCEPT

To appraise the child's self-concept, a simple device may be used. Draw "faces," using a scale of five, from the "saddest" to the "happiest" face. These faces are mimeographed with a statement below each set of five faces.

Read the statements to the group or to an individual child. Direct the children each to circle the one of the five faces which demonstrates his true feelings. Statements, such as the following, are used below each row of five faces: "This is how I feel," "This is how my teacher – friends – mother – father feel(s)," and "This is how I feel about school."

This simple scale, when used judiciously, appears to be as valid as most subjective instruments for measuring the child's self-concept, his feelings concerning others, and how he believes others perceive him. The negatively responding child should be observed more closely, however, before a judgment is actually made.

(12) EYE-HAND COORDINATION AND WRITTEN LANGUAGE

The following activity measures the child's eye-hand coordination, creative writing ability, vocabulary development, handwriting skills, and a sampling of spelling ability. Interests and attitudes are suggested by both the child's picture and his story.

Ask the child to draw a picture and color it. When the picture is complete, direct him to write a story about his picture. No help is given with spelling. (The child who cannot write may dictate a story to the teacher.) Drawing and coloring efficiency, content and length of story, vocabulary used, handwriting and spelling ability serve to measure performance adequacy.

(13) FOLLOWING DIRECTIONS

To determine whether a child has the ability to comprehend and execute one or more oral directions in exact order, the following procedure is used. Test children individually.

Give directions only once. Increase the number of commands until the child can no longer carry them out in sequence. A format similar to the following may be used:

"Walk to the window." (One command)

"Go to the door. Say 'hello.'" (Two commands)

"Go to the bookcase. Get a book. Bring it to me." (Three commands)

Anderson et al. (1963) expects a five-year-old to follow a three-part command in the exact order given.

Directionality Concepts. A group of children may be tested. Use paper and pencil tasks to determine the children's ability to follow simple commands involving directionality.

Direct the children to write their names and ages and specified geometric figures. Indicate where the writing and drawing of each should be placed. *Example:* top, middle, above, below, and so forth. The children may be told: "Write your name on the left side of your paper." "Draw a triangle in the middle of the page." Only one-part commands are given and time is allowed for each child to perform after each direction.

(14) GROSS MOTOR SKILLS

O'Donnell (1969) states that "... too little is known about motor development beyond the age of infancy." He suggests that, "While some portions of an instructional program can be based upon empirical data, other portions must be based upon common sense."

Gesell (1949) expected a typical five-year-old to skip on alternate feet. Gutteridge (1939) found that 81% of the five-year-old children in his sample were proficient at jumping and 74% were proficient at throwing a ball.

These activities may be used as a rough measure of the child's gross motor development.

Ask the child to hop on each foot, skip across the room and throw and catch a ball. Five times for hopping and throwing and catching a ball should be sufficient to determine whether or not he can perform. Skipping should involve the equal use of both feet.

PROFILE OF ABILITIES

A matrix (Table I) is recommended for recording each child's performance. To quickly identify the child who may need help in an area, use two different colored pencils. A black or blue pencil is used to write "P" for "pass" and a red pencil to mark "N" for "needs help or refer." Inter- and intra-individual strengths and weaknesses are identified in this manner. Post measures are obtained by checking the same areas in the spring. Teacher accountability is inherent in this procedure.

TABLE I. Profile of abilities.

Grade: _____ Reading Expectancy Grade _____

Date: _____

Name	Mary	Jim	George
Visual Discrimination			
Visual Memory			
Auditory Discrimination			
Auditory Memory			
Letter Identification			
Writing the Alphabet			
Phonetic Knowledge			
Haptic Ability			
Reversals and Rotations			
Verbal Skills (Oral)			
Copying: Far Point			
Copying: Near Point			
Reading Levels			
Self-Concept			
Eye-Hand Coordination			
Written Language			
Following Directions			
Directionality Concepts			
Gross Motor Skills			

SUMMARY

For more precise measurement of the areas covered in this paper, the following formal instruments are useful: The Detroit Tests of

Learning Aptitude, the Slingerland Screening Tests, the Illinois Test of Psycholinguistic Abilities, the Boehm Test of Basic Concepts, the Wepman Auditory Discrimination Test, the Wagner Reversal Test, the Gilmore Oral Reading Paragraphs and the Wide Range Achievement Test. These are only a few of the many standardized tests which are available.

The informal measures recommended here are adequate for rough assessment of particularly critical areas. Some norms from standardized tests were given but were not intended as inclusive.

In some instances, several different procedures are stated which involve the same area. Thus, the teacher will select the procedure she finds most appropriate for her pupils. Needless to say, informal diagnostic procedures do not yield age and grade scores which are provided when formal measures are used.

This paper is not to be interpreted as recommending a band-aid approach when major surgery is indicated. For many children, however, extensive formal testing is not necessary.

These informal measures should, however, help to answer the teacher's question when she asks, "What can I do before the psychometrist arrives?" — *3 Berkshire Road, Richmond, Va. 23221.*

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